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# REPORT
OF THE
INDIAN TARIFF BOARD
ON
SULPHUR

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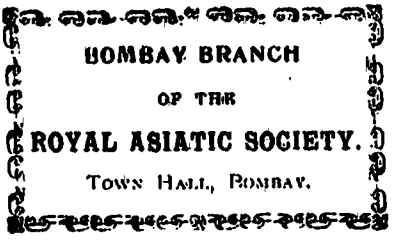


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# REPORT

OF THE

# Indian Tariff Board

REGARDING THE

## REMOVAL OF THE IMPORT DUTY

ON

# SULPHUR

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CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1924

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# Report of the Indian Tariff Board on the removal of the Import Duty on Sulphur.

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# *Part I.—Report.*

# Report of the Indian Tariff Board on the removal of the Import Duty on Sulphur.

Introductory.

The following Resolution of the Government of India in the Commerce Department was published on the 5th October 1923:—

"In pursuance of paragraph 3 of the Resolution of the Government of India, Department of Commerce, No. 3748, dated the 10th July 1923, regarding the constitution of the Tariff Board, the Government of India have decided that along with the question of extending protection to the manufacture of steel in India, the Tariff Board will examine the question of the import duty on sulphur.

"2. Firms and persons interested in the use of sulphur, who desire that their views should be considered by the Tariff Board, should address their representations to the Secretary, Tariff Board, 1, Council House Street, Calcutta."

Representations received by the Board.

2. In all nine representations were received by the Board on the subject of the removal of the duty on sulphur. Four were from firms engaged in the manufacture of chemicals, and three from firms which manufacture sulphuric acid in order to produce sulphate of ammonia as part of the coke bye-product recovery process. The other two were submitted by the Indian Metallurgical Association and the India Tea Association. All the representatives, except the last, desired the abolition of the duty because of the industrial importance of sulphuric acid, for which sulphur is the essential raw material. The Indian Tea Association, on the other hand, pointed out that sulphur (in the form of "flowers of sulphur") was used extensively by the tea industry in the preparation of insecticides. We were not asked to consider any industrial use of sulphur except as a constituent of insecticides and of sulphuric acid.

Sulphur not produced in India.

3. Sulphur is not produced on a commercial scale in India at present, and apparently there is little prospect of such production in the near future. The only workable deposits of which we have heard are at Sanni in Baluchistan, and owing to their great distance from the industrial centres, the Railway freight on transport would be heavy. Nor does India possess workable deposits of sulphur ores, such as pyrites, which are freely used in other countries. It is true that a few years ago the Burma Corporation and the Tata Iron and Steel Company were interested in a scheme for the manufacture at Jamshedpur of sulphuric acid from zinc concentrates brought from the Corporation's mines in Burma. A large amount of money was spent on the scheme, but it was eventually abandoned. We are satisfied that there is no domestic production which would be prejudiced by the removal of the import duty.

Imported sulphur.

4. The whole of the sulphur used in India is imported from abroad, and, in consequence of the freight charges and the import duty, the Indian manufacturer of sulphuric acid is at a disadvantage. The Indian Metallurgical Association has supplied us with the following figures for the average cost to consumers of sulphur in India as compared with England and America:—

| | | | |
|---|---|---|---|
| America | . . | Rs. 40 to Rs. | 50 per ton. |
| England | . . | Rs. 60 to Rs. | 70 per ton. |
| India | . . | Rs. 115 to Rs. | 125 per ton. |

The c.i.f. cost of sulphur in India is from Rs. 90 to Rs. 100 a ton, landing and other charges amount to Rs. 6 a ton, and the present duty (15 per cent. on a tariff valuation of Rs. 100 per ton) is Rs. 15. In 1923 the valuation was Rs. 120, and the duty was therefore higher by Rs. 3. The removal of the duty would bring down the average cost to consumers at the ports to about Rs. 100 per ton. India would still be at a disadvantage as compared with other countries, but she would be substantially better off than she is at present.

Industrial uses of sulphuric acid.

5. Sulphuric acid is of industrial importance in many ways, and we are indebted to the Eastern Chemical Company, Bombay, for an enumeration of some of them. It is used for the manufacture of fertilisers such as superphosphates and sulphate of ammonia, and for the manufacture of other chemicals such as nitric and hydrochloric acids, Epsom salts and Aluminium sulphate. In certain branches of the steel industry (*e.g.*, tinplate and wire) sulphuric acid is indispensable for pickling the metal, that is, for removing scale from its surface. It is also used in electric accumulators, in the manufacture of mineral waters, in refining mineral oils and in the manufacture of dyestuffs and explosives. The above list is far from exhaustive and the chemicals, of which sulphuric acid is a constituent, have many industrial applications, *e.g.*, in dyeing and bleaching, to mention only one. Cheap sulphuric acid is of importance, directly or indirectly, to very many industries, and it is for this reason, no doubt, that the production of sulphuric acid in a country is sometimes spoken of as an index or barometer of its industrial prosperity.

Artificial fertilisers.

6. The small use which has hitherto been made of artificial manures, which are needed to maintain or restore the fertility of the soil, has long been a reproach to Indian agriculture. In all Provinces the Agricultural Departments of Government are anxious to stimulate and extend the use of fertilisers by the cultivator, and under the present tariff such fertilisers are admitted free of duty. Cheaper sulphuric acid would do something to promote the manufacture of chemical manures in India and, by lowering their price, make it possible for the raiyat to buy them. In this branch of manufacture, the fertiliser which is

produced on the largest scale in India is sulphate of ammonia. This is produced in bye-product recovery plants (both in the coalfields and at Jamshedpur) by bubbling the waste gases from the coke ovens, after the tar has been extracted from them, through sulphuric acid. Sulphate of ammonia is thereby precipitated in the form of a white powder. It is unfortunate that only a small proportion of India's production of this valuable chemical manure is consumed in the country. The bulk of it is exported to Java and Mauritius for use in the sugar plantations, and to Ceylon. In these markets the Indian product has, of course, to compete with fertilisers imported from other countries, and the question of price is all important if India is to hold its own. A reduction in the cost of manufacture of sulphate of ammonia would also be beneficial in another direction. Since it is a bye-product produced in the manufacture of coke, any profits that are made are taken in reduction of the cost of producing coke, and thence ultimately of pig iron and steel.

The chemical industry.

7. The witnesses who gave evidence before us stated that the bulk of the sulphuric acid used in India was manufactured in the country, and the removal of the duty on sulphur is therefore important, not because the Indian manufacture of sulphuric acid cannot hold its own, but because cheaper sulphuric acid is indispensable to the establishment of other industries and particularly of the chemical industry. Oral evidence was given at Bombay by representatives of two companies engaged in the manufacture of chemicals. They expressed the desire to put before us proposals for an increase in the import duties on imported chemicals, but with these we were unable to deal, as the question had not been referred to us by the Government of India. The evidence made it clear, however, that chemicals are now being imported into India at very low prices and that the growth of the industry in the face of foreign competition will be difficult. The removal of the duty on sulphur would do something to cheapen the cost of producing chemicals in India, and it is very desirable that help should be given in this form.

Extent of the benefit to the Indian manufacturer of the removal of the duty on sulphur.

8. We were not successful in obtaining exact information as to the reduction in the cost of various chemical products likely to result from the removal of the duty on sulphur. The calculations are somewhat intricate, and the representatives of the Companies were not agreed as to the quantities of sulphuric acid used in the production of certain chemicals and were, moreover, unwilling to disclose their manufacturing costs. But in the case of sulphate of ammonia, the evidence Mr. E. L. Watson gave on behalf of the Indian Metallurgical Association enables us to give the figures. Approximately one ton of sulphur is required to make 3·5 tons of 77 per cent. sulphuric, or 2·7 tons of pure, undiluted acid. The import duty of Rs. 15 a ton on sulphur, therefore, raises the cost of undiluted sulphuric

acid by Rs. 5·5 a ton and the cost of the 77 per cent. acid by Rs. 4·3. According to the details given by Mr. Watson, the latter figure is from 6 to 7·3 per cent. of the cost of 77 per cent. acid. A ton of sulphate of ammonia contains three-quarters of a ton of undiluted sulphuric acid. The import duty on sulphur, therefore, means an addition of Rs. 4·1 to the cost of one ton of sulphate of ammonia. This is less than 2 per cent. of the market price of the fertiliser, and probably not much more than 2 per cent. of the cost of production. It may, however, mean a substantial sum to the manufacturer. The Tata Iron and Steel Company will require approximately 4,600 tons of sulphur annually, and the duty they would pay on this quantity is about Rs. 69,000.

Financial effect of the removal of the duty on sulphur.

9. The imports of sulphur into India during recent years are given in the following table:—

| | Imports. Tons. |
|---|---|
| Average of the 3 years, 1911-12 to 1913-14 | 5,764 |
| 1920-21 . . . . . | 10,592 |
| 1921-22 . . . . . | 6,277 |
| 1922-23 . . . . . | 9,026 |
| 1923-24 (ten months' figures multiplied by $\frac{12}{10}$) . . . . . | 12,067 |

If the imports be taken at 12,000 tons, the sacrifice of revenue involved in removing the duty is a little over Rs. 1·8 lakhs.

Proposal.

10. We recommend that the present import duty of Rs. 15 a ton on sulphur be removed, and that henceforward sulphur be admitted free of duty. The reasons in favour of this proposal are, we think, strong. Sulphur is not produced in India and is not likely to be produced, and no domestic interest will therefore be prejudiced. On the other hand, the removal of the duty will be of substantial benefit to the chemical industry and the manufacture of fertilisers, as well as to other industries.

Subsidiary proposal.

11. The present duty of Rs. 15 a ton is applicable to what is known as "rough sulphur." Sulphur is also imported in two other forms known as "flowers of sulphur" and "roll sulphur" and the tariff valuations of these forms are Rs. 120 and Rs. 140 a ton respectively, the duties being Rs. 18 and Rs. 21 a ton. It is "rough sulphur" which is used for the manufacture of sulphuric acid and the bulk of the imports are in this form. "Flowers of sulphur" are used chiefly for medicinal preparations and for insecticides, and it is on account of the latter use that the Indian Tea Association has asked that this form also should be freed from duty. Their estimate is that the tea industry is now paying on account of import duty on sulphur a sum considerably in excess of Rs. 25,000 a year. Regarding the

uses to which "roll sulphur" is put we have no information. It is the removal of the duty on "rough sulphur" that is the important matter, but since the removal of duty on "flowers of sulphur" would benefit the tea industry and the imports of the third form are apparently small, we do not think it is advisable to discriminate. We, therefore, recommend that the import duty on all kinds of sulphur should be removed.

G. RAINY, *President.*
P. P. GINWALA.
V. G. KALE.

G. C. F. RAMSDEN, *Secretary.*
*March 17th, 1924.*

# *Part II.—Evidence.*

*Letter from the Managing Agents, the Burma Chemical Industries, Ld., Rangoon, to the Secretary, Tariff Board, dated 24th November 1923.*

We are notified that the question of the import duty on sulphur will be examined by your Board, and we wish to bring to your notice the facts that affect Burma in this connection.

We have been manufacturing sulphuric acid for years and our average yearly outturn is about 3,600 tons, of which 3,300 tons are used by the Oil Producing and Refining Companies, of whom Messrs. The Burmah Oil Co., Ld., are by far the largest consumer. As you know this acid is used in the washing of oil and is a very large item in the cost of production; any import duty on sulphur must be borne by the consumer, which at once puts them at a disadvantage as against suppliers of oil from other countries where sulphuric acid can be produced very cheaply, as the necessary raw materials can be procured locally either in the form of sulphur, zinc blende or pyrites, none of these raw materials being available in Burma in any sufficient quantity to pay for their exploitation.

In addition to sulphuric acid of this grade, known as commercial, we are doing an increasing business in pure sulphuric acid for accumulators, and are now supplying the Government Telegraph Department and the local wireless stations, and with the new Hydro-Electric Scheme in contemplation, this branch of our business would be called on to supply very large quantities of acid; with sulphur free of import duty we could supply this acid at a low figure, thereby helping to make the introduction of electric power a practical proposition for many industries throughout Burma.

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*Letter from Messrs. Shambhu Nath and Sons, Amritsar, to the Secretary, Tariff Board, No. M.-164, dated 3rd December 1923.*

The Director of Industries, Punjab, Lahore, has kindly sent us the Resolution of the Department of Commerce, No. 4954, dated simla, the 5th October 1923, and we give below our views on the subject for the consideration of the Tariff Board.

It is well known that the sulphur is mostly imported in India for the manufacture of sulphuric acid, which is recognized as the mother of industries throughout the civilized world; it is essential for the improvement of the industries in India that all facilities be given for its manufacture.

A reference to the Report of the Indian Industrial Commission, 1916—1918, pages 52 and 53, will indicate that sulphur is not produced in India, and has to be imported, under these conditions it will not be out of place if it was allowed to pass free of duty.

At present the duty is not charged on actual price, which is between 90—95 rupees per ton c.i.f. Indian Ports, but on Rs. 120 per ton, which is rather a hardship than facility in the way of acid manufacturers.

After the report of the Commission referred to above, it was hardly conceived that the duty on this essential article will be increased along with other articles, but it did increase, and one more impediment was placed in the cheap manufacture of the sulphuric acid; we do hope now the Tariff Board will see its way for recommending abolition of duty on sulphur, and thus further the interest of all industries.

Trusting that this will have due consideration, we remain.

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*Letter from the Managing Agents, The Bararee Coke Co., Ld., Calcutta, to the Secretary, Tariff Board, dated 9th November 1923.*

With reference to letter No. 5954-Com., dated 13th October 1923, from the Secretary to the Government of Bengal, Commerce Department, to the Secretary, Bengal Chamber of Commerce, we beg to inform you that as users of sulphur in connection with our by-product Coke Plant, we are strongly in favour of the removal of the import duty on sulphur.

*Letter from the Managing Agents, Jharia Sulphuric Acid Co., Ld., Calcutta, to the Secretary, Tariff Board, dated 31st October 1923.*

In connection with the Government of India Resolution No. 4954, Department of Commerce, we beg to give our views on the question of the import duty on sulphur from the point of view of a manufacturer and consumer of sulphuric acid.

2. Sulphur is a valuable raw material which has to be imported, as it has not yet been discovered in India in any quantity. Its uses have not been developed as they should. We will not go so far as to say that the import duty is the sole reason for this want of development, but we hope to show that it is a factor which deserves consideration at the hands of the Tariff Board.

3. Raw sulphur is the principal ingredient of sulphuric acid, and sulphuric acid is the basis of artificial manures and of most of the chemical industries. Until recently the use of sulphuric acid in India was very limited, as the manufacture of manures was in its infancy, or can hardly be said to have begun, and the quantity required for chemical and medicinal purposes was so small as to make the manufacture of acid in this country impossible as a commercial proposition. Of recent years the development of the bye-product recovery coke plants at various collieries has led to a large increase in the demand for sulphuric acid, and it is now that the burden of the heavy import duty on sulphur begins to be felt.

4. In giving briefly the history of sulphur, as it eventually comes into the market, we will begin with sulphate of ammonia. This is produced by the bye-product recovery plants by bubbling the waste gases from the coke ovens, after tar has been extracted from them, through sulphuric acid. Sulphate of ammonia is thereby precipitated in the form of a white powder, and is, as is well-known, a valuable chemical manure. The agriculturists of this country have not been educated up to fertilizing the soil, except by very primitive methods, and the result is that the demand for sulphate of ammonia in this country is unfortunately small. Those collieries who have put down coke plants which produce this chemical find that it is necessary to export a considerable portion of their output, if they are to keep this part of their plants fully at work. The export is to Java, Ceylon and Mauritius chiefly. It is here that the question of price comes in, and the duty on the raw sulphur handicaps the exporter in India in competition with the home-made and Continental-made product.

5. One of the essentials for cheap sulphate of ammonia is cheap sulphuric acid, and this cannot be manufactured except with cheap sulphur. It is difficult enough at any time to compete with home products in the markets of the middle and far East, but it is easily seen that the sulphur which comes, for instance, from Italy or Sicily, and is admitted to England free of duty to be re-exported in the form of sulphate of ammonia, has an overwhelming advantage over the similar commodity which is manufactured in India, but has to bear a high import duty.

6. Cheap sulphur has further indirect advantages to the development of industrial India. In the first place, it encourages the manufacture of acid on a large scale, which is an industry only just starting. In the second place, as we have pointed out above, cheap acid would enable the collieries producing sulphate of ammonia to compete successfully in the export trade, and by producing cheaper manure would encourage the raiyats of India to cultivate on a more scientific basis; and, in the third place by keeping their bye-product plant fully employed in all its details, the price of producing coke would obviously be reduced, and this in itself re-acts on practically every industry in the country.

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*Letter from the Director, Messrs. Tata Sons, Ld., Bombay, to the Secretary, Tariff Board, No. G.-1163-23, dated 13th October 1923.*

We observe that the Government of India have now instructed the Tariff Board to examine the question of import duty on sulphur along with the

question of extending protection to the manufacturers of steel in India. Our views on this subject have been fully expressed in our letter No. G.-997 of the 11th/12th September to yourself and we consider it unnecessary for us to send another representation. We would request that this letter should be treated as a formal application for the removal of the present import duty.

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*Letter from the Director, Messrs. Tata Sons, Ld., Bombay, to the Secretary, Tariff Board, No. G.-997-23, dated 11th September 1923.*

The Tariff Board has been kind enough to ask us to express our views on the question of exemption of sulphur from Customs duty. Our views agree generally with those given in his written evidence by Mr. Sawday as representative of the Indian Metallurgical Association before the Indian Fiscal Commission. In answer to Question No. 11 Mr. Sawday stated "we see no advantage . . . . in taxing a chemical like sulphur, which is the raw material for the manufacture of sulphuric acid and which is not found in workable quantities in India. Sulphur must be imported. It is not a luxury and the tax is useful only for revenue purposes. We submit that the money would be better taken by a tax which has some stimulating effect on Indian industries."

We would, however, like to add a few more points here for your consideration:—

(1) The Chemical Industry in India is dependent entirely on imported sulphur for the manufacture of sulphuric acid which is the basis of all chemical manufacture. Cheap sulphur is therefore of prime importance to the country. We need not labour this point which has been frequently insisted on by Sir Thomas Holland. Government were themselves at one time prepared to assist financially the scheme of the Burma Corporation for the manufacture of sulphuric acid from Zinc Concentrates at Jamshedpur for this very reason. A large amount of money was spent on the scheme but it was not carried through partly because Government could not afford to give the assistance originally contemplated and partly because there were doubts as to the success of the manufacturing process in the Indian climate.

(2) The iron and coke industries require large quantities of sulphuric acid for the recovery of the by-products. Our own requirements of sulphur, when the present programme of extensions is completed, are estimated to be 4,500 tons annually. Without plentiful and cheap supplies we cannot reduce the cost of our coke as we cannot obtain the profit obtained by other countries from the by-products and as a result we cannot reduce the cost of steel to the country. Also it is obviously a most serious economic waste that the valuable products should be lost in non-recovery ovens and without cheap acid that is inevitable.

Sulphur is purely a raw material. It cannot be obtained or manufactured in the country and no reasonable system of tariffs would, in an agricultural country, tax the raw material required for the manufacture of manures cheaply within the country while at the same time admitting manufactured manures themselves duty free as at present.

The abolition of the import duty will lose little revenue and will be more than compensated by the direct and indirect gain to the country.

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*Letter from the Secretary, Indian Tea Association, Calcutta, to the Secretary, Tariff Board, No. 1527-Q., dated 19th December 1923.*

I have the honour to refer to Resolution No. 4954, dated the 5th October 1923, by the Government of India in the Department of Commerce. The resolution stated that the Government of India had decided that, along with

the question of extending protection to the manufacture of steel in India, the Tariff Board would examine the question of the import duty on sulphur. The General Committee of the Indian Tea Association desire to take the opportunity of submitting to the Tariff Board their views on this question.

2. The import duty on sulphur is 15 per cent. on a tariff valuation, and the tariff valuation of flowers of sulphur is Rs. 7 per cwt. Sulphur in this form is used to a considerable extent by the tea industry in the preparation of insecticides and the General Committee are of opinion that the import duty should be removed. They have read with interest the evidence regarding this matter given to the Fiscal Commission* by the representatives of the Indian Metallurgical Association and to the Tariff Board by the representatives of the Tata Iron and Steel Company, Limited. Giving evidence to the Board on 27th August 1923 Mr. Sawday stated that the company are at present paying Rs. 25,000 in import duty on sulphur and that, when their greater extensions come into operation the amount will be Rs. 75,000. The General Committee estimate that the amount which the Indian tea industry is now paying on account of import duty on sulphur is considerably in excess of Rs. 25,000. Its import is necessary, because, as was pointed out to the Fiscal Commission by the representatives of the Indian Metallurgical Association, there is no sulphur available in India. Its use in insecticides is of great value to an important industry and the General Committee strongly support the contention of the Tata Iron and Steel Co., Ld., that it should be admitted free of duty.

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*Original representation from the Honorary Secretary, The Indian Metallurgical Association, Calcutta, to the Tariff Board, No. I.M.A.-163, dated 8th August 1923.*

I have the honour to address you on the subject of the duty on raw sulphur, which subject, I understand, is shortly coming up for the consideration of your Board.

This Association has previously addressed the Director General of Commercial Intelligence in this matter, and your Board have doubtless been informed as to the nature of our representations.

It was originally thought that a reduction in the present duty, together with a reduction in the tariff valuation of sulphur, would alleviate, to some extent, the very considerable handicap, under which producers of acid in this country have been suffering, but although the tariff valuation has been reduced from Rs. 200 to Rs. 120 the latter figure is still higher than the actual cost of sulphur with the result that acid manufacturers still pay something like a 20 per cent. *ad valorem* duty.

Your Board are aware that sulphur is the primary raw material for the manufacture of sulphuric acid, and whereas cheaper sources, such as pyrites, blende, etc., are available in Europe, such is not the case in India, and acid producers here have to look to extracted sulphur as their only choice of raw material. America and Japan, which are sulphur producing countries, have a choice of source of sulphur. In these countries the cost of extracted sulphur to the acid manufacturer is reduced by the competition of readily available pyrites. India has no workable deposits of sulphur ores of any kind of her own, with the result that such sulphur as she has to import is purchased at a C.I.F. figure higher than pertains in any of the other acid manufacturing countries in the world. The cost of acid for the manufacture of various chemicals for which it is a basic material, is in consequence, enhanced, and Indian manufacturers are, in many cases, unable to meet the competition of Chemicals manufactured abroad.

It has been ascertained by this Association that the average cost of sulphur to consumers in America is the equivalent of Rs. 40 to Rs. 50 per ton, and in England, the equivalent of Rs. 60 to 70 per ton. In India,

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* Minutes of Evidence Vol. II, p. 327.

the cost at Port is between Rs. 90 and 100 per ton, to which has to be added the fixed duty of Rs. 18 per ton, and say Rs. 6 per ton, landing and other charges; in short, India is paying between Rs. 115 and Rs. 125 per ton for her sulphur, or at least double that of her competitors in other countries.

Where then is she to sell her acid products, and by what means is it to be expected that she can compete? The bulk of acid produced is used in the manufacture of sulphates, *e.g.*, sulphate of Ammonia, the consumption of which in India itself is fractional. Its markets are to be found in Java, Mauritius and the far East, and sulphate manufacturers have at times found it practically impossible to meet competition from England, America and Germany.

We would like also to point out that the finished products manufactured from sulphuric acid, of which Chemical Manures is the chief, come into India duty free and this anomaly is one which, it should be the object of your Board to remove.

When we draw to your recollection the dictum of Sir Thomas Holland that you can judge a country's prosperity by the amount of sulphuric acid it produces, and, also the strong recommendation of the Fiscal Commission on this point, we feel that it is unnecessary to strengthen our case still further. This Association, in giving evidence before the Fiscal Commission, pressed strongly for the abolition of duty on raw sulphur, and it now urges your Board to take the matter up at an early date since sulphur is the raw material of three essential Basic Industries.

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*Statement I.—Original representation from the Dharamsi Morarji Chemical Co., Ld., Bombay, to the Secretary, Tariff Board, Calcutta, dated the 10th October 1923.*

The consideration of the present import duty on sulphur having now been referred to the Tariff Board for decision, we beg to enclose a copy of a letter we addressed to the Secretary to the Government of India, Department of Commerce and Industry, Simla, dated the 19th July 1923, with a request that the same be placed before the Board for their consideration to enable them to arrive at a decision regarding the total abolition of the import duty on sulphur.

We also beg to intimate our desire to give evidence before the Tariff Board at a future date should the Board decide to visit Bombay for the purpose of taking oral evidence on the subject.

(*Enclosure.*)

*Copy of letter No. 7/581, dated 19th July 1923, from Dharamsi Morarji & Co., to the Secretary to the Government of India, Department of Commerce and Industry.*

*Regarding import duty on sulphur.*

We have had occasion to address you before this on the question of the present 11 per cent. import duty on sulphur, when we pointed out how unfair the duty is, having regard to the fact that sulphur is the raw material for sulphuric acid which is the basic industry for the manufacture of various heavy chemicals on which are dependent many of the industries of India. This duty, you are no doubt aware, hits the manufacturers of Sulphuric acid

and consequently indirectly all users of sulphuric acid by making it expensive. The imposition of import duty on sulphur would signify that the immense importance of sulphuric acid in India is not realised. A very large number of manufacturing industries require sulphuric acid at one stage or another. In times of war sulphuric acid is absolutely essential for the manufacture of munitions and explosives.

The importance of cheap sulphuric acid for the manufacture of fertilisers such as superphosphates, sulphate of ammonia, etc., so essential for scientific agriculture must not be ignored.

Sir Thomas Holland at a meeting of the East India Association less than two years ago drew particular attention to the importance of cheap sulphuric acid for India in the following words:—

> "Until India could produce sulphuric acid at £3 per ton . . . . . the rest of the resources of India were so much loot for any power that could dodge the British Navy."

How can the accomplishment of Sir Thomas Holland's desire for cheap sulphuric acid be made possible so long as the raw material for the same is handicapped by an import duty of 11 per cent., still made worse by a tariff valuation arbitrarily fixed?

To handicap such an important industry by an import duty on its raw material is surely against the best interests of the country.

The unfairness of this import duty on sulphur is universally admitted. The report of the Indian Fiscal Commission of 1921-22, in paragraph 113, has recommended the abolition of import duty on sulphur in the following words—

> "Raw materials required for Indian industries should ordinarily be admitted free of duty. By raw materials, we mean materials which have not undergone more than the most elementary treatment, such as ginned cotton, wool tops or raw rubber. . . . . .
>
> For instance, we have had many complaints regarding the import duty on sulphur which is a raw material for many industries and the Tata Oil Mills Company have complained that their industry of extracting oil from copra in Southern India is handicapped by the import duty on copra. In both these cases there appears to be good reasons on ordinary protectionist principles for removing the duty."

Having regard to the foregoing, we shall be glad if you will submit, with your recommendation, the question for the total abolition of import duty on raw sulphur to the consideration of the Indian Tariff Board.

Thanking you in anticipation.

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*Statement II.—Letter from the Dharamsi Morarji Chemical Co., Ld., Bombay, to the Secretary to the Tariff Board, Calcutta, dated 6th November 1923.*

With reference to the oral evidence to be tendered by us before the Tariff Board on the 16th instant, we beg to enclose herewith a written statement in support of the same, wherein we have asked for a protective duty on the chemicals which we are manufacturing at present and which we have on our programme.

We regret that we have had to expedite the despatch of this written statement dealing with the import duty on chemicals even before the receipt

of the requested telegram from you in reply to our letter No. 8/578 of the 2nd instant in order to save time. We of course assume that the Board is empowered to go into the question of protective tariff for chemicals along with the question of duty on sulphur on account of the close relationship of the one with the other.

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*Representation of the Dharamsi Morarji Chemical Co., Ld.*

We beg to approach you with the following representation for a revision in the present tariffs affecting sulphur and the allied chemical products, and request that you may be good enough to take the same into consideration, while making your recommendations to the Government of India regarding the same.

*Importance of Chemical Industry to India.*

Now that the Government of India have adopted the policy of introducing measures for the development of Indian industries on the recommendation of the Fiscal Commission of 1921-22 we invite the attention of the Board to be concentrated on the development of the chemical industry in India, which in our opinion is of great national importance. It is almost a truism to say that no country in the world has ever experienced industrial development unless it has its own indigenous chemical industry. England, United States and Germany are instances in point. Nor the importance of a chemical industry be ignored from the Government's point of view; as in times of war, the ammunition and gun factories of the country have to depend for their very existence on sulphuric and nitric acids. We would therefore submit that it is up to the Government of this country to introduce effective measures for an all-round development of the Indian chemical Industry. The measures we would suggest should take the following forms:—

(1) Total abolition of import duty on sulphur.

(2) Increase of import duty on such chemicals as are being manufactured in India at present.

Sulphuric acid which is the basic industry for the manufacture of other acids, such as hydrochloric and nitric and allied chemical products, has for its raw material pyrites or sulphur. The existing sulphuric acid plants in India are designed for the utilisation of sulphur, for which there are no workable mines in India, and which therefore has to be imported from foreign countries, such as South America, Sicily and Japan. The Tariff Policy of the Government of India, as a rule, allows raw materials necessary for the manufacture of commodities in India to be imported either duty free or on a nominal import duty. It is, therefore difficult to understand the reason why sulphur should be subjected to import duty. The present duty which is on the tariff valuation of sulphur (Rs. 120) works out at something like 18 to 20 per cent. on the invoiced value of imported sulphur. Thus although sulphur can be purchased at a c.i.f. price of Rs. 90 to Rs. 100 per ton, the manufacturers have to pay an import duty of Rs. 18 per ton and Rs. 5 per ton for landing and other charges. Sulphur therefore costs us anything from Rs. 115 to Rs. 125 per ton. This is against Rs. 65 per ton at which sulphur is obtainable in England. Under such conditions, it is unlikely that the chemical industry which is entirely dependent on the manufacture of sulphuric acid can ever develop to any large extent.

Our first suggestion therefore is to allow sulphur to be imported duty free. We urge that economically the loss to the state by total abolition of import duty on sulphur would be negligible, since the revenue derived from the source is less than 2 lakhs a year; but the gain due to a rapid development of the industry would be considerable as it would mean a substantial revenue to the Government by way of super and income-tax, when the industry is allowed to prosper. We are strongly of opinion that cheaper sulphur would stimulate the development of the chemical industry with the result that the chemicals would be manufactured on an increasingly large scale.

More perhaps than the importance of the manufactures of foreign chemicals in India, is the manufacture of sulphate of ammonia and superphosphates, which are fertilisers. The importance of fertilisers to Indian agriculture cannot be ignored. Cheaper sulphur would certainly give a fillip to the manufacture of superphosphates in India. It will also be appreciated that the Indian agriculturist being proverbially poor as he is, what is essential for the development of Indian agriculture is that he should get the fertilisers as cheap as possible.

A specific recommendation for doing away with the duty on sulphur has already been made by the Indian Fiscal Commission at page .

Our next submission is that steps be taken for the manufacture of chemicals in India. A large number of chemicals at the present moment possesses the natural advantage necessary for their manufacture in India, inasmuch as the principal raw material which is sulphuric acid necessary for their manufacture is produced in this country on a fairly large scale. The present import duty of 15 per cent. on chemicals in our opinion affords little protection to chemicals which are being produced in India and has proved inadequate as a safeguard against the dumping of chemicals by foreign manufacturers who make light of the import duty on account of the following reasons:

1. The costs of production of foreign manufacturers are very low, in consequence of their production being on an extensive scale.

2. During the war, the foreign chemicals works which were working overtime have added considerably to their pre-war plants. They are therefore in a position to dump their chemical productions on the Indian markets at rediculously low prices giving little chance for the development of the indigenous chemical industry.

If therefore it is seriously intended to protect the indigenous chemical industry, a half-hearted increase in the present tariff would not achieve the desired result. We think that a protective Tariff of 15 per cent. in addition to the existing import duty for say 15 years, would be far better set the industry on its feet, rather than a nominal increase at which industry might struggle on, a burden to the Indian investor, and no asset the Government.

We believe that if the protection asked for by us is given the industry will be in a position to withstand the competition of the foreign manufacturers in 10 to 15 years' time, the main favourable conditions for its development being that India possesses a supply of cheap labour.

Another direction in which we would press the claims of the Indian chemical industry on your attention for its due development is in the matter of railway freights, which are so high as to put the manufacturers completely out of the distant markets in India. The railway freights, it will be appreciated, play a very important role in the manufacturing costs of any commodity. It is equally so where the manufacturer has to get his raw material to his factory. The freights work out so heavy that they unnecessarily add to the costs of the raw material, much increasing the cost of production of the chemical. For instance, magnesite, which is the raw material f r magnesium chloride and epsom salts, costs at the mines Rs. 25

per ton, while the freights from the mines to our factory site at Ambernath works out at Rs. 40 per ton. Thus whereas the railway freight ought to be a fraction of the actual cost of the raw material, in this case, it is in considerable excess of it. Another instance is that of bauxite, which is the raw material for the manufacture of soda alum. Bauxite is available at Katni in the Central Provinces at Rs. 6 per ton while the freight from Katni to Ambernath is Rs. 25 per ton. Thus it will be seen that the prevailing railway freights, high as they are, are a most unfortunate and fatal handicap on the development of chemicals as they considerably add to the cost of production and therefore make it impossible for the manufacturers to produce chemicals in this country at competitive prices.

We therefore urge that the Government of India be moved at a very early date for allowing the lowest possible concessional freight, not only for the transport of acids and chemicals, but for the transport of raw material, such as scrap iron for iron sulphate; bones and raw phosphates for superphosphates; magnesite for magnessium chloride and epsom salts; calamine for zinc sulphate and zinc chloride, the latter of which alternatively takes up zinc scrap for its raw material; and bauxite for soda alum.

We may here mention that we are the largest manufacturers of acids and heavy chemicals on this side of India and have our Works at Ambernath (near Kalyan) on the G. I. P. Ry. We are at present producing sulphuric, hydrochloric and nitric acids in large quantities and are also making sodium sulphide, glauber's salts, copperas and ferro alum. We are also laying down plants for superphosphates, zinc and magnesium chlorides.

We submit that this Company satisfies all the conditions necessary for protection and patronage of Government. The Company is registered in India with a rupee capital subscribed both by British and Indian Capitalists. The Board of Directors consists of Indian gentlemen of standing and reputation. In granting the protection asked for, the Government of India will not only be giving natural effect to the principles laid down by themselves for future action but in addition they will be translating into action the recommendations made by the Fiscal Commission.

In conclusion, the grounds on which we feel justified in asking for a sufficiently high percentage protection on heavy chemicals to successfully withstand the competition of foreign manufactures, are as follows:—

(1) To render India completely independent of foreign sources of supply as regards acids and heavy chemicals, both in times of war and in peace times.

(2) To afford Indian students of chemistry opportunities for practical training in the manufacture of acids and chemicals so as to do away with the necessity for them to go abroad for this purpose.

(3) To check the continuous drain of money from India spent in the purchase of large quantities of acids and chemicals.

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*Statement III.—From The Dharamsi Morarji Chemical Co., Ld., Bombay, to the Secretary to the Tariff Board, Bombay, dated 26th November 1923.*

In reference to the evidence given by our representative before the Tariff Board on the 16th instant, we beg to submit supplementary written statement regarding eleboration of certain items referred to in the evidence, as desired by the members of the Board

(1) *Fertilisers.*

We have all along aimed at the manufacture of superphosphates and as many other artificial manures as are practicable in this country with a view to supply the needs of Indian agriculture at as low a cost as circumstances may permit. It has already been pointed out to the Board that cheap sulphuric acid is a *sineque non* for cheapening the cost and therefore the price of artificial manures. In this respect, our experience with regard to this is confined to the following chemical manures:—

(1) Bone Phosphates.
(2) Sulphate of Ammonia.
(3) Nitrate of Soda.
(4) Potash sulphate.

With regard to (1), we took up the propaganda for popularising these in the year 1920, having in view the manufacture of these manures as soon as our sulphuric acid plant started working. In this connection, we expended approximately ten thousand rupees on the propaganda work. Our superphosphate plant has already been laid down and will be ready to operate in approximately two months' time from now.

With regard to (2), although we cannot claim to be manufacturers of this chemical manure, we can claim a certain amount of credit in having supplied the needs of the Deccan Agriculturists by way of sales of sulphate of ammonia through our depôts at Poona, Kopergaon, and Kolhapur in the Deccan, which are the centres of the sugarcane area. In the year 1922, we sold at the aforesaid depôts altogether 750 tons of sulphate of ammonia obtained from the Tata Iron and Steel Company as a result of a fixed contract with them. During the current year, we obtained sulphate of ammonia from the same company as a result of an arrangement with them to make the sulphate of ammonia out of our sulphuric acid supplied to them by us from our works at Ambernath. In passing, we may mention that we have sold and are selling almost all the chemical manures as also some organic manures.

With regard to (3) we have sold this out of what we have obtained from abroad.

(4) is a by-product of nitric acid, which we obtain out of our nitric acid plant which is already working at Ambernath.

We should like to mention here that the above manures are the essential nutritive foods of the impoverished soil of this country and with the exception of nitrate of soda all of them require sulphuric acid for their manufacture.

(2) *Uses of our Chemical Manufactures.*

Below we set out a list of the chemicals which we are manufacturing and which we have on our list for manufacture, together with the uses to which they are put.

| | |
|---|---|
| Sodium Sulphide . . . . | Sulphur dyeing. |
| Glauber Salt . . . . . | Used for the finishing process of cotton textiles. |
| Copperas . . . . . | Dyeing of cotton textiles. |
| Aluminium Sulphate . . . | Used for purifying water and largely used by Municipality. |
| Zinc Chloride . . . . . | Sizing. |

(3) *Direct effect of removal of duty on manufacture of sulphuric acid.*

Although it may appear that as a consequence of the removal of import duty on sulphur the present selling price of sulphur may not be affected more than 2 to 3 per cent., we submit that the calculation although correct is misleading It was pointed out by our representative that although

during the first year of our sulphuric acid plant the quantity of sulphur imported by us was 1,100 tons, our normal requirements at the basis of the full working of the plant when our allied chemical product plants are completed would be 2,000 tons per annum. As the import duty in existence at present works out at Rs. 18 over every ton, there would be a saving of Rs. 36,000 per year in the purchase of the raw material, which it will be realised is a very substantial saving for a newly started industry. The main thing to remember and which must not be lost sight of is that any benefit which the cost of sulphuric acid may receive by removal of duty on sulphur would affect favourably the cost of other acids and allied chemical products in the ratio of quantity of sulphuric acid required for their production.

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[1] *Statement I.—Original representation from the Eastern Chemical Company, Limited, Bombay, to the Secretary, Tariff Board, Bombay, dated 15th November 1923.*

In view of the importance of an indigenous chemical industry to this country, whether in peace time or during a period of war, and of the supreme necessity of rendering it self-supporting if it is to rank as a basic industry of considerable value, we venture to bring to your attention a few facts, which, in our opinion, tend to retard its progress to the detriment, as we firmly believe, of the general good of the country, with a request that you will be so good as to place the same before your Board for their earnest consideration.

As you are aware, the chemical industry in India is still in its infancy. We claim to be the pioneers in Western India, and during the 12 years of our existence (five of which were war years) we succeeded in establishing a fairly considerable trade in such main lines as sulphuric, hydrochloric and nitric acids, together with certain subsidiary products, principally salts We were more or less able to maintain our position up to the cessation of hostilities; but, with the advent of peace and the consequent re-opening of the Indian market to imports from foreign countries, particularly Germany, our business in epsoms, copperas and glaubers salts has gradually dwindled, until, at the present moment it does not pay us to produce the first two of these commodities, and we have accordingly deemed it advisable to shut down this portion of our plant rather than work it at a heavy loss.

It is an accepted principle that a sulphuric acid plant should primarily be used for the manufacture of articles for which sulphuric acid is the base, and not for the sale of sulphuric acid itself as though it were the final manufactured product. The case of two important products, *viz.*, magnesium sulphate (epsom salts) and green copperas, may be taken as instances of the handicap under which the industry labours by reason of foreign competition. The imports of these articles constitute dumping in its worst form: the State that manufactures them has the initial and overwhelming advantage of a depreciated currency, and the goods are carried to India in State subsidised ships paying the minimum rate of freight. Moreover, during the war years considerable extensions of plant were made by European manufacturers, resulting in over production. The Germans are able in consequence to sell their epsoms in this country at Rs. 3-8 a cwt. (it used to be as low as Rs. 2-8 not so very long ago) a price below our actual production costs. The inevitable result is that we cannot afford to produce magnesium sulphate at the present moment, nor, for identical reasons, are we able to manufacture copperas.

Another factor tending to restrict our operations is the prohibitive rates of freight charged by Indian Railways. As an instance in point may be mentioned the fact that the freight on magnesite, which is one of the ingredients used in the manufacture of magnesium sulphate, is about six times the cost of the material *ex* mine.

The greatest disability from which the chemical industry suffers is in the imposition of a 15 per cent. duty on imported sulphur, based on a tariff

valuation of Rs. 120 per ton. In actual practice, however, this duty works out to something like 25 per cent. on the c.i.f. cost and 22 per cent. on the cost of the article delivered at the Works. We venture to remark that the incidence of this duty, high as it is from the purely industrial point of view, is an unjust burden on our particular industry since sulphur as a raw material is unknown in this country, the same having to be imported from the United States of America, Italy and Japan, and because it forms the basis of at least three industries of vital importance to India, *viz.*, steel, manure and chemicals.

The position of India as primarily an agricultural country demands that every effort should be made to improve its agricultural resources as much as possible. A short review of the benefits to be derived from a more extensive use of furtilisers may be permitted to us in this connection.

In the case of rice crops in the Konkan, a full yield when fertilisers are used and water abundant is about 4,000 lbs. per acre, whereas a good average for transplanted rice is only 2,800 to 3,000 lbs. per acre. Of wheat a well manured irrigated plot will yield 2,000 lbs. per acre, whereas the average is less than 600 lbs. per acre. Equally startling contrasts apply to cotton, sugarcane, tobacco, etc., so that the development of the use of fertilisers may rightly be regarded as a matter of first national importance. An extended use of fertilisers in India can only be secured by the cheapening of costs, and this provides another very strong argument in favour of the abolition of the duty on sulphur, for it may be said of the greater part of India that the necessity for using fertilisers is imperative, and the supply notoriously inadequate to both actual and potential requirements.

In the Season and Crop Report published by the Department of Agriculture of the Government of Bombay covering the period 1920-21 for Bombay Presidency proper, the total area under crop was stated to be 25,126,000 acres, while additional cultivable waste land was estimated at 1,012,000 acres. In countries where artificial manures are employed, one cwt. per acre is a very conservative estimate of fertiliser required. On this basis, the acreage under cultivation in the Bombay Presidency could easily absorb one and a quarter million tons of fertilisers provided scientific methods are used.

While it is understood that the Board is not empowered to deal with the question of the imposition of new or enhanced Customs duties on any chemical products, we would point out the intimate connection this subject bears in relation to that under investigation, *viz.*, the removal of import duties on raw material, for the protection afforded thereby would enable chemical plants in India to considerably increase their output and at the same time to materially cheapen costs. The increased production and consequent cheaper cost would in turn greatly reduce the price of manufactured products and so place the industry in the enviable position of being able to supply same at practically the price of foreign dumped articles.

We may add that the loss of revenue occasioned by the abolition of the duty on raw materials will probably be counterbalanced by the increased revenue consequent upon the imposition of a protective tariff in the case of manufactured chemicals.

In conclusion, we beg to express the hope that the Board will see their way to make the necessary recommendations in the direction of a protective tariff against imports of chemical products as well as the total abolition of the present duty on imported Sulphur.

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*Statement II.—Letter from The Eastern Chemical Company, Limited, Bombay, to the Secretary, Tariff Board, Bombay, dated 19th November 1923.*

With reference to the evidence already placed before the Tariff Board in connection with the question of the abolition of the import duty on raw sulphur, we now beg to submit the following supplementary remarks:

For purposes of sale, sulphuric acid is generally concentrated to a specific gravity of 1,840 containing 95 per cent. of sulphuric acid. For use in manufacturing other products, however, it is more convenient to use acid of 1,500 specific gravity containing 60 per cent. of sulphuric acid, commonly described as chamber acid.

In considering the subject before us, it must be borne in mind that the assumption that one ton of sulphuric acid will yield 3 tons of 95 per cent. acid is not altogether correct; the important point is *the percentage of the cost of the acid due to Sulphur*. Our own experience shews that 50 per cent. of chamber acid (calculated at 95 per cent.) is due to Sulphur.

To avoid complications, it is as well here to note that all sulphuric acid is based upon its content of 95 per cent. acid.

Assuming that one ton of sulphur costs Rs. 120 (tariff valuation) and that it will yield three tons of sulphuric acid, the cost of sulphur per ton of acid would then be Rs. 40 and the actual cost of the acid would be double this figure, *viz.*, Rs. 80. Calculating a reduction of 20 per cent. in the cost of sulphur, the price of this commodity would work out at Rs. 96 per ton. Thus the cost of sulphur per ton of acid will be Rs. 32. The other costs for producing acid remain constant and will amount to Rs. 40. The actual cost of the acid would, under the circumstances, be Rs. 72 per ton. This represents a saving of Rs. 8 per ton, equal to 10 per cent.

The advantage of such a reduction in the cost would be best illustrated by the large number of uses for sulphuric acid, some of which are enumerated below in more or less their order of importance:—

1. Manufacture of other chemicals.
   - (*a*) Fertilisers (Superphosphates and Ammonium Sulphate).
   - (*b*) Nitric, Hydrochloric, Acetic Acids, etc.
   - (*c*) Epsom Salts, Aluminium Sulphate (Copperas and Copper Sulphate).
2. Steel Industry.
3. Dyeing and Bleaching.
4. Accumulators.
5. Mineral water manufacture.
6. Refining Mineral Oils.
7. Manufacture of Explosive and Dyestuffs.
8. Grease recovery from wool scourings.

All these industries would benefit by the cheapening of the cost of sulphuric acid and all are, or might well be, carried on in India.

The products we actually make at the present moment are:—

1. Sulphuric acid used as above.
2. Nitric acid used for—
   - (*a*) Explosives.
   - (*b*) Gold refining.
   - (*c*) Fine chemicals.
   - (*d*) Dyestuffs.
3. Hydrochloric acid used for—
   - (*a*) Dyeing and bleaching.
   - (*b*) Pickling
   - (*c*) Zinc chloride.
   - (*d*) Aniline hydrochloride.
   - (*e*) Glue and gelatine manufacture.
4. Epsom Salts used for—
   - (*a*) Textile processes.
   - (*b*) Medicine.
   - (*c*) Certain dyes.

5. Glauber's Salts used for—
   (*a*) Textile processes.
   (*b*) Medicine.
6. Copperas used for—
   (*a*) Dyeing.
   (*b*) Ink manufacture.
   (*c*) Paint manufacture.
7. Salt Cake used for—
   (*a*) Glass manufacture.
   (*b*) Sodium sulphide.

The additional products we should manufacture in the event of obtaining cheaper sulphuric acid would be:—

1. Aluminium Sulphate, Alumino-Ferric, Alum used for—
   (*a*) Dyeing.
   (*b*) Calico printing.
   (*c*) Water purification.
2. Sodium Sulphide used for—
   (*a*) Dyeing.
   (*b*) Leather industry.
3. Acetic acid, used for—
   (*a*) Rubber industries.
   (*b*) Dyeing.
   (*c*) Paint manufacture.
4. Ammonium sulphate used for—
   (*a*) Fertilisers.
   (*b*) Other heavy chemicals.
5. Chorme Alum used for—
   (*a*) Leather industry.
   (*b*) Dyeing.
6. Copper Sulphate used for—
   (*a*) Plating.
   (*b*) Fungicides.
   (*c*) Dyeing and Calico printing.
7. Nickel Sulphate used for—
   (*a*) Nickel plating.
   (*b*) Hydrogenation of oils.
8. Zinc Chloride used for—
   (*a*) Textile processes.
   (*b*) Wood preservation.

In enumerating the variety of products as being within the scope of our manufacture by way of illustrating their intimate connection with the industrial life of the country, we venture to hope that we have clearly demonstrated the far reaching beneficial effects that would ultimately result from the abolition of the import duty on raw sulphur into India.

# Oral evidence of Mr. E. L. WATSON, representing the Indian Metallurgical Association, recorded at Calcutta on Wednesday the 10th October 1923.

*President.*—The particular subject about which we want to take evidence to-day is the removal of the duty on sulphur. I do not know whether the Metallurgical Association wish also to give evidence on the general question of protection of the steel industry.

*Mr. Watson.*—I do not know anything about the protection of the steel industry.

*President.*—I mention it now because the Metallurgical Association gave very full evidence before the Fiscal Commission, but if they desire to modify what they said then or wish to supplement it in any way, then the Board would be very glad indeed to hear anything they may have to say on the subject. You are not in a position to discuss that?

*Mr. Watson.*—I am not in a position to discuss that at all. I am concerned entirely with the question of the removal of the duty on sulphur.

*President.*—You say at the beginning of your letter "This Association has previously addressed the Director General of Commercial Intelligence in this matter." I have not yet seen that representation. Was it simply on the question that the tariff valuation is too high?

*Mr. Watson.*—Yes, the tariff valuation is based on the bazar prices instead of on the cost price.

*President.*—That was before the tariff valuation was reduced from Rs. 200 to Rs. 120?

*Mr. Watson.*—Yes, it was reduced from Rs. 200 to Rs. 140 in the first instance, and then from Rs. 140 to Rs. 120 at which it now stands.

*President.*—At what stage was your representation made?

*Mr. Watson.*—At both the stages.

*President.*—Since it was reduced to Rs. 120, you have not again made any representation?

*Mr. Watson.*—The reduction took place only last year and it has not yet been subject to any revision.

*President.*—I notice that in the Tariff Schedule there are three different valuation for three different forms of sulphur.

*Mr. Watson.*—Yes.

*President.*—For 'flowers' it is Rs. 7, 'roll' Rs. 8 and 'rough' Rs. 6?

*Mr. Watson.*—Yes.

*President.*—I take it that 'rough' is the form in which the great bulk is actually consumed?

*Mr. Watson.*—Yes. "Flowers of sulphur" is a misnomer. It is known as sublime sulphur and is a medicinal preparation entirely. What actually comes into Calcutta as "flowers of sulphur" is for disinfecting tea bushes. I don't think that they have made yet that distinction in the tariff valuation.

*President.*—That naturally does not concern you much?

*Mr. Watson.*—No.

*President.*—So what is called 'rough' sulphur is the commercial article?

*Mr. Watson.*—Yes.

*President.*—Later on in the letter—the very last sentence—you say that sulphur is the raw material of three essential basic industries. Will you please tell us what these industries are?

*Mr. Watson.*—The sulphuric acid industry is the primary one. That has been added after I saw the letter. I have not yet had time to study it. It is also essential for the manufacture of sulphate of ammonia and also for the manufacture of super-phosphates used as fertiiisers.

*President.*—May I take it that these are the three basic industries?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—What was the first one please?

*Mr. Watson.*—Chemical industry generally.

*President.*—It has definitely been put down in the representation that there are three basic industries for which sulphur is a raw material. I must get the point cleared up. I want to know what these industries are.

*Mr. Watson.*—Sulphuric acid for which sulphur is the raw material is itself a raw material; that is a point which should always be emphasised. The sulphuric acid industry is only an industry producing a raw material for other industries. Sulphuric acid is essential for the manufacture of coke and steel, and it is essential for the manufacture of sulphate of ammonia which is a bye-product. It is essential again to the manure manufacture. It is also essential to the chemical manufacturing industry.

*President.*—I am afraid it is not clear yet. I want to know definitely what are the three basic industries?

*Mr. Watson.*—Steel manufacturing industry, the manure industry and the chemical industry.

*President.*—As regards the steel industry I take it that the importance of sulphuric acid is that is required for liberating the by-products?

*Mr. Watson.*—It is used in the coke industry which is part of the steel industry to recover the ammonia. I am referring to that.

*President.*—That may be distinguished from the steel industry: coke ovens belong rather to the pig iron industry.

*Mr. Watson.*—I should leave the coke industry. Would it be better to call it a coking industry?

*President.*—Then as a supplementary point in connection with steel, tin plates, and so on, is it not a fact that a good deal of sulphuric acid is required?

*Mr. Watson.*—It is required in the tinplate industry.

*President.*—Only in the tinplate industry?

*Mr. Watson.*—Not in the manufacture of steel and not in the case of rolling bars.

*President.*—For various other industries that deal with steel as a raw material it is needed, is it not?

*Mr. Watson.*—For subsidiary industries, yes.

*President.*—Take, for instance, the manure industry. The sulphur has got to be manufactured into sulphuric acid before you can use it?

*Mr. Watson.*—Yes. Roughly about 1¼ million tons of sulphuric acid is manufactured in Great Britain of which at least ¾ or ⅗ is used in the manufacture of super-phosphates. That shows the extent of the industry.

*President.*—Coming to the chemical industry, is it again the sulphuric acid that is used or do you use the sulphur itself?

*Mr. Watson.*—It is the sulphuric acid.

*President.*—What are the final products of the chemical industry?

*Mr. Watson.*—A very large number. Taking our own factory, I can give you a few: sulphate of ammonia in various forms, Epsom salts, sodium sulphates, hydrochloric acid, nitric acid and a number of other salts are manufactured from that.

*President.*—The next question is to what extent these various manufactures exist in India to-day. Of course the manufacture of sulphuric acid

is actually going on in connection with the recovery of by-products in more than one case. Then as regards the manure industry, we saw the sulphate of ammonia being made at Jamshedpur. Is there any other manure made in India to-day?

*Mr. Watson.*—No. Super-phosphates are manufactured in certain quantities but not on a large scale. It is a question that I have been going into for years. There are two or three points that arise in connection with that, but the principal trouble of course is the cost of sulphuric acid in India.

*President.*—Do you anticipate that, if the duty were removed, it would make a difference and that the manufacture of other manures would be undertaken in India?

*Mr. Watson.*—Progress, I think, would be comparatively slow but it would be steady. The real point of course is that India, not having cheap superphosphate available, has not used it and one has got to stimulate its use. The Agricultural Departments are very keen on the necessity for the more extended use of that as a manure, but that will only go hand in hand with the cheap form of the manure.

*President.*—How long is it since sulphate of ammonia began to be produced in India?

*Mr. Watson.*—Well, the Oriental Gas Co. first produced it and, to my knowledge, they have been producing it, I think, for the last 20 years, that is, as far as my memory goes back. Then followed Martin & Co. at Kulti and you have got a number of extensions after that. Tatas and others have also come in.

*President.*—You say in your representation that the demand in India for sulphate of ammonia is only fractional and that its market is to be found in Java, Mauritius and other places?

*Mr. Watson.*—Yes, the total consumption in India is very small indeed.

*President.*—The inference that suggests itself to you is that, even if the manufacture of super-phosphates were undertaken, it is not likely that the demand in India itself would be very great?

*Mr. Watson.*—No, but it is a growing demand which should be encouraged, I think.

*President.*—Is the demand for the sulphate of ammonia a growing demand in India?

*Mr. Watson.*—Yes, it is bound to grow in my opinion.

*President.*—Is there any evidence that it has grown?

*Mr. Watson.*—Yes. You will get more evidence from the Agricultural Department.

*President.*—Would the manufacture of super-phosphates be a separate industry by itself? Or would they be by-products of other industries?

*Mr. Watson.*—Yes, a separate industry by itself.

*President.*—And what other raw materials would be required for their manufacture?

*Mr. Watson.*—Natural rock phosphate.

*President.*—Which place in India, do you think, would be a suitable place for the manufacture of super-phosphates?

*Mr. Watson.*—Suitable centres are ports.

*President.*—Why ports?

*Mr. Watson.*—They are the best distributing centres. Moreover you can land your rock phosphate by water.

*President.*—Has it to be imported?

*Mr. Watson.*—Yes, the Geological Survey has not yet discovered any rock phosphate in India.

*President.*—If the industry has to depend on imported raw material, there again is a natural handicap?

*Mr. Watson.*—Yes.

*President.*—There would not be the same advantage in manufacturing super-phosphates in India as a separate undertaking. The sulphate of ammonia comes in as a side branch of something else.

*Mr. Watson.*—The only point I want to make on the question of super-phosphate manufacture is that we are not asking for any protective duty. All that we are asking for is the removal of an injustice and the removal of a handicap.

*President.*—All that I am trying to find out is what results may be hoped for if the duty is removed. That is all I am endeavouring to ascertain just to see how things stand. Then as regards the manufacture of chemicals, is that existent in India to-day?

*Mr. Watson.*—Yes.

*President.*—Can you tell us anything about that?

*Mr. Watson.*—Yes, we manufacture chemicals ourselves.

*President.*—When you say 'ourselves,' to whom do you refer?

*Mr. Watson.*—My own company.

*President.*—Can you tell us the name of the company?

*Mr. Watson.*—Messrs. D. Waldie and Co. We are turning out about 10,000 tons of chemicals every year.

*President.*—Can you tell us the quantity of sulphuric acid you require for this outturn?

*Mr. Watson.*—We are now using over 5,000 tons.

*Mr. Mather.*—That is apart from your sales?

*Mr. Watson.*—Yes.

*President.*—Your firm is the principal firm that is concerned with it.

*Mr. Watson.*—Yes. We have been 70 odd years in India.

*President.*—Would the removal of the duty on sulphur make a considerable difference?

*Mr. Watson.*—Yes, it would. The incidence of the duty on the costs will be as follows. I have taken the figures of our factory at Calcutta and those of a factory in the coalfields. There is a difference of cost in the latter case owing to the freight of the raw material. The duty on sulphur means 11 per cent. on the cost of raw materials for the manufacture of sulphuric acid and it comes to 8 per cent. on the total of our final product.

*President.*—I am not quite sure I have got it distinctly yet.

*Mr. Watson.*—The duty on sulphur is 15 per cent. on Rs. 120 a ton basis. From a ton of sulphur we make roughly 3¼ tons of 77 per cent. acid. The cost then of the sulphur in a ton of acid is Rs. 5 and the incidence of the duty on the cost is roughly 8½ per cent.

*President.*—That is to say, this duty on sulphur adds 8½ per cent. to the cost of the sulphuric acid.

*Mr. Watson.*—Yes, and in the coalfields it is only 7 per cent., a fraction lower.

*President.*—I thought you had carried the calculation a stage further.

*Mr. Watson.*—I have not. On the sulphate of ammonia, it would give a slightly higher fraction. It would come to nearly Rs. 6 a ton.

*President.*—I don't really understand why it should be higher in the case of sulphate of ammonia.

*Mr. Watson.*—A ton of acid is reckoned as 75 per cent. of a ton of sulphate of ammonia.

*President.*—How much sulphuric acid is contained in a ton of sulphate of ammonia?

*Mr. Watson.*—77 per cent. is sulphuric acid. A ton of sulphate of ammonia contains about 75 per cent. of real sulphuric acid and for commercial purposes it is taken as 77 per cent. and that makes a slight difference. The amount of real acid in a ton of sulphate of ammonia is 75 per cent. and when you manufacture you use 75 per cent. roughly.

*President.*—If you want to make a ton of sulphate of ammonia?

*Mr. Watson.*—I have got to use 75 per cent. acid.

*President.*—I don't want it in a percentage form.

*Mr. Watson.*—¾th of a ton. When your acid gets there, it is de-hydrated. It is in a different stage. It has got to be converted from one to the other.

*President.*—The point that occurred to me is this. There might be so to speak some loss in the process. Three quarters of sulphate of ammonia is sulphuric acid.

*Mr. Watson.*—The loss is very slight. The figure I gave covers that loss. Moreover sulphur contains some impurities. That also is reckoned as part of the loss.

*President.*—You have given the average cost of sulphur to consumers in America, England and India.

*Mr. Watson.*—Yes.

*President.*—Can you suggest any means by which the Board can verify these figures?

*Mr. Watson.*—You can do so by a reference to the chemical journals. The last week's figures were f.o.r. 5 guineas a ton. Contract prices would be of course considerably less. In America the last quotation was about 14 dollars at port.

*President.*—In India, you go by your own experience?

*Mr. Watson.*—Yes.

*President.*—What are the market prices in India to-day of sulphuric acid?

*Mr. Watson.*—It is entirely dependent on how it is delivered. The market price for sulphuric acid per ton is from 85 to 120 rupees, that is, in wagons. The market price in Calcutta delivered in jars is probably about Rs. 140 for similar acid. It is all a question of large and small scale working and handling.

*President.*—May we take it that on a large scale it is selling at Rs. 85 to 120 and on a small scale it may go up to Rs. 140?

*Mr. Watson.*—Yes, and for pure accumulated acids it is much more. That of course is a special manufacture.

*President.*—In the case of sulphate of ammonia, can you give us the market prices?

*Mr. Watson.*—The market price has been recently about Rs. 250 to 265 f.o.b. Calcutta. That is a rough estimate. I cannot tell you the exact figures. They change every two or three weeks.

*President.*—How would they compare with pre-war prices?

*Mr. Watson.*—They are considerably above pre-war prices. They are based entirely on English prices but the English price has been varying from £16 to £18-10-0 according to grade. There are two grades. One is dry and the other is slightly acid. The pre-war price for ordinary grade was £11 a ton and the average will be about £12, so that the difference is £4 a ton for that grade.

*President.*—If sulphate of ammonia is exported at present at the rates which you mentioned, can they get a market for it in Java, for instance?

*Mr. Watson.*—Yes.

*President.*—At the prices you mentioned?

*Mr. Watson.*—Yes. They are f.o.b. prices.

*President.*—I see that you quote Sir Thomas Holland's dictum. I have seen that statement referred to more than once. Do you know the occasion on which Sir Thomas Holland made that remark?

*Mr. Watson.*—I gave evidence before the Industrial Commission. I know that it was his pet statement. I do remember it very well, but I could not tell you where and when he made that statement. I think that instead of 'a country's prosperity' if he had said 'a country's industrial prosperity', it would be more to the point.

*President.*—I understand that. Can you tell me why the production of sulphuric acid is considered as it were a barometer of the country's prosperity?

*Mr. Watson.*—It shows the highest stage of industrial development of the country.

*President.*—Are there any other industries where sulphuric acid is largely used?

*Mr. Watson.*—Yes, in the dye manufacture it is very largely used.

*President.*—Are there any other industries which are worth special mention?

*Mr. Watson.*—In America it is used in connection with the copper industry.

*President.*—That is to say, wherever an industry involves a certain chemical process, it is extremely likely that sulphuric acid will be used.

*Mr. Watson.*—I should think so.

*President.*—You have referred to the point that while sulphur pays a duty of 15 per cent., chemical manures, for which sulphur is necessary, come in free. Well, the theoretical anomaly is obvious. But how far is it a practical anomaly in India at present? Do chemical manures come in appreciable quantities?

*Mr. Watson.*—Yes. They do.

*President.*—But there is no sort of local manufacture of super-phosphates.

*Mr. Watson.*—Super-phosphates are made locally. We make it sometimes here.

*President.*—That is not on a considerable scale.

*Mr. Watson.*—We have done fairly large quantities at times but at present the market, as I have said, varies a great deal. Two years ago there was a slump in the tea market but they are now making it up. We are not able to make it up now because there is foreign competition and there is the depreciated foreign exchange.

*President.*—Are these chemical manures used principally in connection with the tea industry at present which is a specialised process of agriculture?

*Mr. Watson.*—The tea industry and the indigo industry. The sugar industry will require sulphate of ammonia.

*President.*—That is to say, for some time to come a good deal will be used chiefly for these processes of agriculture where the final product is of a high value when compared to what you start with?

*Mr. Watson.*—Yes.

*President.*—I have been looking at the import returns and I see that for the last three years the imports were as follows:—

I have not got the figures for 1922-23.

160,000 cwts. for 1919-20.

212,000 cwts. for 1920-21, and

126,000 cwts. for 1921-22.

I notice from the monthly volumes that the imports for the first five months of this year run to 114,000 cwts. which is nearly equal to the quantity imported last year. What was the average quantity imported before the war?

*Mr. Watson.*—Say about 5,000 tons to 6,000 tons.

*President.*—As low as that? Do you anticipate that from now onwards the imports will be considerably higher than they were?

*Mr. Watson.*—I anticipate that next year the imports will run over 12,000 tons.

*President.*—I take it that the various by-products of coke produced by the Tata Iron and Steel Co. at once increase the demand. The main importance of that figure is really to estimate what the sacrifice of revenue would be.

*Mr. Watson.*—I can give you a rough figure. The revenue on sulphur is approximately Rs. 1½ lakhs of which the proportion paid by acid makers will probably be Rs. 1 lakh. Apparently on the present tariff valuation it works out to ·9 or Re. 1 a cwt., so that if the imports went up by Rs. 2,50,000 it will be a little less than that: Rs. 2,30,000 would be the probable amount derived.

*President.*—At present sulphur for practical purposes is not produced at all in India.

*Mr. Watson.*—No.

*President.*—In a letter which we received from the Tata Iron and Steel Co. they mentioned the fact that they had a scheme along with the Burma Corporation for making sulphuric acid. But that is not material. Do you consider that it is at all likely that sulphur will ever be produced in India in considerable quantities?

*Mr. Watson.*—I do not think that sulphur will be produced. That seems a question for geologists. I think it quite possible that substitutes for sulphur, such as pyrites, have been found in considerable quantities. I have tried to work out possible deposits but up to now nothing workable can be found and practically the whole of the sulphur that is used is imported from outside.

*Mr. Ginwala.*—Your firm is a member of the Metallurgical Association?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—How many members has this Association got?

*Mr. Watson.*—There are about 14.

*Mr. Ginwala.*—Most of these are people who are manufacturers of iron and steel products and so on. How many of them are manufacturers of chemicals?

*Mr. Watson.*—The Tata Iron and Steel Co. are producing sulphuric acid.

*Mr. Ginwala.*—I mean firms whose main business is the manufacture of chemicals.

*Mr. Watson.*—I think it is the only one.

*Mr. Ginwala.*—What are the chemicals that you manufacture besides those that you have mentioned?

*Mr. Watson.*—I gave a list to the President. We make sulphuric acid, nitro-muriatic acid and the by-products of these. We make these acids and the salts of the acid. We also manufacture red lead on a large scale. We are the only people in India who do it.

*Mr. Ginwala.*—Do you export any of your chemicals or do you sell them locally?

*Mr. Watson.*—They are sold locally. We cannot afford to export as we cannot meet the competition from abroad.

*Mr. Ginwala.*—What makes it difficult for you to export?

*Mr. Watson.*—The cost of raw materials.

*Mr. Ginwala.*—What are your other principal raw materials besides sulphur?

*Mr. Watson.*—Saltpetre.

*Mr. Ginwala.*—There is abundance of it in this country.

*Mr. Watson.*—I may mention that we are making nitrate of soda at present for which we use Chile saltpetre.

*Mr. Ginwala.*—Does that form a large percentage of your cost?

*Mr. Watson.*—It amounts to between 10 and 11 per cent. on a ton of acid.

*Mr. Ginwala.*—Is that subject to duty?

*Mr. Watson.*—No.

*Mr. Ginwala.*—Have you got any other raw materials which are subject to duty besides sulphur?

*Mr. Watson.*—Practically no other—unless you count lead as a raw material. Sheet lead is of course practically a raw material as it is used for chemical manufacture. It is the only substance that can be used on a large scale for conducting chemical reaction.

*Mr. Ginwala.*—What is the duty on that?

*Mr. Watson.*—15 per cent.

*Mr. Ginwala.*—Is the tariff valuation correct in that case?

*Mr. Watson.*—It is *ad valorem*. There is no valuation there: the duty is paid on the invoice value.

*Mr. Ginwala.*—Does that form a considerable percentage of the total value of the finished article?

*Mr. Watson.*—Yes. Our lead is an important matter but I do not lay much stress on it because we do not expect to get any consideration from Government on such a matter.

*Mr. Ginwala.*—Why are you so pessimistic in that matter?

*Mr. Watson.*—We have been trying to remove the sulphur injustice for the last twelve years and I have no hope of getting a remedy on a minor matter.

*President.*—I think we must be a little careful because chemical industries are not before us.

*Mr. Ginwala.*—What is the position as regards sulphate of ammonia? I understood you to say that one ton of sulphur produces 3½ tons of sulphuric acid.

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—Then you said that the real sulphuric acid in the sulphate of ammonia was 75 per cent. I do not follow this.

*Mr. Watson.*—I may put it this way. One ton of sulphur will give you three tons of sulphate of ammonia.

*Mr. Ginwala.*—Do you use coal tar for any purpose?

*Mr. Watson.*—No. We did coal tar distillation but this is a business which should be done on the coal fields. We have not pursued it and it has now been undertaken by Messrs. Jardine Skinner at Barari on a large scale. What their position will be I do not know. I inspected some samples to analyse them but the variation in the character of the tar is so wide that one cannot predict anything as to what one is going to get out of them.

*Mr. Ginwala.*—Tatas say that there is practically no market for their coal tar and I wish to know whether they are likely to get one.

*Mr. Watson.*—It is very difficult to say indeed.

*Mr. Ginwala.*—Are there any inherent difficulties?

*Mr. Watson.*—The market for coal tar is comparatively limited. It is only used for tarring wood and structures of that sort and its use in India is not very extended yet. For chemical purposes it is going to be very difficult. There are variations in the nature of the coal and the tar produced and there will be variations in the by-products which you will obtain from these. For instance, we have tested Tatas' tar for phenyl and carbonic acid and it was not up to the standard. How some of these and other tars will turn out I cannot say without testing.

*Mr. Ginwala.*—Is it due to the coal tar being inferior?

*Mr. Watson.*—It may be due to the method of distillation in the coke ovens.

*Mr. Ginwala.*—Have you tried Tatas' coal tar recently?

*Mr. Watson.*—No. Not recently.

*Mr. Ginwala.*—Because it is possible that the new coke ovens may have made some difference.

*Mr. Watson.*—It all depends on what they are designed to do.

*Mr. Ginwala.*—You say that pyrites may be used as a substitute for sulphur. Is that a good substitute?

*Mr. Watson.*—Quite a good substitute as long as it is cheap enough.

*Mr. Ginwala.*—What is the relative cost at present?

*Mr. Watson.*—In India it would not pay to use pyrites because the freight is high and it contains only 45 per cent. sulphur. It was largely used in England during the war time owing to the low cost; it was Spanish pyrites which was tipped on board the ship and landed at port.

*Mr. Ginwala.*—Where are pyrites found in India?

*Mr. Watson.*—It is found in various parts of India but no workable deposit has been discovered. I do not know why it should not be. It is a matter of time.

*Mr. Ginwala.*—What are your principal sources for the supply of sulphur?

*Mr. Watson.*—Almost entirely from Sicily.

*Mr. Ginwala.*—Do you not get it from Japan or America?

*Mr. Watson.*—Not now. It is a question of market conditions and freight.

*Mr. Ginwala.*—Are there any duties on the chemicals that you manufacture?

*Mr. Watson.*—There is an average of 15 per cent. duty on all of them except in the case of Copperas on which a duty of 2½ per cent. is paid. This exception was made as a result of a commercial treaty with France. As regards the other chemicals for the cotton trade they used to come in duty free before, but when they raised the import duty on cotton goods they withdrew the concession from the cotton trade and removed to some extent the anomaly from which we were suffering.

*Mr. Ginwala.*—Looking at the duty actually paid, it does not represent a very large amount.

*Mr. Watson.*—It is only a small industry at present but it will develop into a large one.

*Mr. Ginwala.*—What proportion does the duty paid bear to the total cost of the finished article—sulphuric acid?

*Mr. Watson.*—I have given you the figures. It comes to about 7 to 8 per cent.

*Mr. Ginwala.*—Do you think that if this duty on sulphur is removed other chemical works will be started in this country?

*Mr. Watson.*—It will strengthen the position of the industry generally. It would justify the expenditure on new plant. At 8 per cent. debentures it would amount to Rs. 50,000 which is worth having.

*Mr. Ginwala.*—I take it that you are the biggest manufacturers of chemicals in India?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—Are there any other manufacturers in other parts of India?

*Mr. Watson.*—There are the Bengal Chemical Works (but the manufacture of chemicals is not their principal side).

The Eastern Chemical Company, Bombay.

Dharamsee Morarjee, Bombay, which is a new enterprise. Parry & Co., Madras.

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Burma Chemicals, Rangoon. They do sulphuric acid and practically nothing else.

*Mr. Ginwala.*—You were talking of fertilisers. So far as the Indian cultivator is concerned he does not use them?

*Mr. Watson.*—I think he will.

*Mr. Ginwala.*—He does not as a rule believe in any of these chemicals for agricultural purposes.

*Mr. Watson.*—He believes in some of them. Those who can afford to put money spend on fertilisers and use them. The large landholders may use these chemicals. The cultivation of indigo is a case in point.

*Mr. Ginwala.*—Take sulphate of ammonia which is chiefly used in connection with sugarcane. It is said to be a failure so far as India is concerned.

*Mr. Watson.*—Why is it a failure? It is again being experimented on at Poona, I hope under proper control this time. It may succeed. I know of one planter whom I have come across on previous occasions. He was shoving the fertilisers on his lands and it was not the season. He had to account for it to his agent and all he said was that the experiment failed.

*Mr. Ginwala.*—What are the other kinds of fertilisers used in this country?

*Mr. Watson.*—Super-phosphates.

*Mr. Ginwala.*—Sulphate of ammonia is only used for sugarcane.

*Mr. Watson.*—No. It can be used for certain other crops as well. Mixed manures are used for root crops at home. The other manures which are principally wanted here, are super-phosphates.

*Mr. Ginwala.*—Are there any phosphates in India?

*Mr. Watson.*—I have had some very nice samples of phosphates. I am waiting to find out what the bulk will prove like. The sample is very fine.

*Mr. Ginwala.*—Do you think that will be useful for general agricultural purposes?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—And sulphur in that case will make a considerable difference?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—You said that the import of these phosphates does not come to more than Rs. 2 lakhs. That is not very much for a big agricultural country.

*Mr. Watson.*—It might increase.

*Mr. Ginwala.*—The amount of sulphuric acid imported is also very small?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—So that it comes to this—that most of the sulphuric acid required for the industries in this country is produced in the country?

*Mr. Watson.*—Yes.

*Mr. Ginwala.*—Are there any firms which manufacture only sulphuric acid?

*Mr. Watson.*—I think so.

*Mr. Ginwala.*—Is the plant for the manufacture of sulphuric acid an expensive one?

*Mr. Watson.*—It all depends on the scale on which you are working. The bigger the scale the smaller the plant *pro rata*.

*Mr. Ginwala.*—What is the smallest unit you can work commercially?

*Mr. Watson.*—Taking our Loyabad plant for sulphuric acid only—we have a trained Indian chemist in charge—I think the total cost on that plant *plus* the working capital required is 1½ lakhs and it turns out 1,800 tons of sulphuric acid a year.

*Mr. Kale.*—You have told us that you have been fighting this sulphur battle for the last ten years and that the Government have not yet fully satisfied you. Can you tell us the reason why Government has shown apathy?

*Mr. Watson.*—I can only quote from a letter we received from the Commerce Department which stated (after referring to one or two minor errors we made) that Government could not depart from its principle; it must adhere to the principle of an all-round duty for revenue purposes. They said they could not make any exception.

*Mr. Kale.*—They desired to adhere to a principle?

*Mr. Watson.*—I pointed out that the principle was honoured rather in the breach than the observance in the case of at least five or six industries, but they did not reply to that.

*Mr. Kale.*—The amount of revenue that Government will be called upon to sacrifice if your proposal is accepted will be very small?

*Mr. Watson.*—About a lakh and a half only.

*Mr. Kale.*—You think that the gain to the country as a whole will more than counterbalance the little loss of revenue to Government?

*Mr. Watson.*—I certainly think so.

*Mr. Kale.*—What proportion of the chemicals used in India do you produce in India itself?

*Mr. Watson.*—I should say it is a very very small proportion at present. I have never tried to get the figures together. The Industries Department of the United Provinces were trying to get these figures but they had not been successful up to the time I left.

*Mr. Kale.*—I want to form an idea of the size of the industry as it exists at the present moment and the size to which it ought to develop in the near future.

*Mr. Watson.*—I can give you a rough estimate of the capital (leaving out sulphate of ammonia) invested in the industry at present. I should say that the investment in the chemical industry is between 80 lakhs and a crore of rupees—probably nearer a crore.

*Mr. Kale.*—Do you think that there will be considerable development in this industry if sulphur is entirely freed from duty?

*Mr. Watson.*—It will encourage the industry and induce another 10½ lakhs of rupees capital.

*Mr. Kale.*—Will it be in the interest of the Indian agriculturist to adopt your suggestion?

*Mr. Watson.*—Certainly. It might not be in the interest of the agriculturist to put countervailing duties on other products. But the removal of the duty would be to the interest of the agriculturist: it will tend to cheapen all things required for agriculture.

*Mr. Kale.*—The Agricultural Departments in the provinces, as you have already pointed out, are very keen upon supplying to the cultivators cheap manures, and they are even suggesting to the Government of India that the export of manuring materials should be stopped or restricted in any case. In these circumstances, is it not an advantage to the agriculturist that these manures should come free into the country?

*Mr. Watson.*—They are coming free.

*Mr. Kale.*—Do you think that there will be a larger supply of these manures in India if sulphur is freed from duty?

*Mr. Watson.*—The point is—you reduce the cost to the agriculturist because the local manufacturer can then afford to bring down prices.

*Mr. Kale.*—You will be able to bring down the prices of the imported stuff?

*Mr. Watson.*—That will be the natural tendency in the market and that will benefit the cultivator.

*President.*—What is wanted is free trade on protectionist principle?

*Mr. Watson.*—We are asking for free trade. At present you are protecting the importer against the Indian manufacturer.

*Mr. Mather.*—You probably know that the only important sulphide ores that are being smelted in India are those by the Burma Corporation at Bawdwin in Burma. Do you happen to know whether the question of recovering sulphur has been considered here?

*Mr. Watson.*—They talked of it three or four years ago, but I think no workable process has yet been devised. The actual cost of working these sulphide ores is rather high. It is a very difficult practical problem and they were not justified in carrying it out.

*Mr. Mather.*—They are actually extracting lead now and liberating sulphur in the process.

*Mr. Watson.*—I do not know what they are doing now but if they are going to extract it, it is a question of devising a process for it.

*Mr. Mather.*—As acid manufacturers I thought you might possibly know.

*Mr. Watson.*—I have no information at all.

*Mr. Mather.*—If they did it by some practical process, you think the duty on sulphur should be discouraged?

*Mr. Watson.*—Yes.

*Mr. Mather.*—The members of the Board are rather anxious to know what effect this duty on sulphur has on the cost of ammonium sulphate.

*Mr. Watson.*—At present it affects the manufacture of sulphate of ammonia to the extent of Rs. 6 per ton.

*Mr. Mather.*—I have just been working it out on the figures that you gave and I would just like you to check my calculation. The present duty on sulphur is Rs. 18 per ton; you have told us of the raw sulphur used 10 per cent. is lost in producing the sulphate of ammonia; so that the duty on a ton of sulphur in ammonium sulphate is 10 per cent. higher, that is Rs. 19-8 per ton. The percentage of sulphur in pure sulphate of ammonia is 24 per cent.; therefore, the duty on sulphur in one ton of ammonium sulphate is 24 per cent. of Rs. 19-13 which comes to Rs. 4-12.

*Mr. Watson.*—It comes to nearly 30 per cent.

*Mr. Mather.*—That would indicate that there is much bigger loss in sulphur?

*Mr. Watson.*—As a matter of fact losses are heavier in the hot weather; in the cold weather you can reckon pretty close.

*President.*—You have told us of 8½ per cent. duty on the cost of production of sulphate of ammonia?

*Mr. Watson.*—On the sulphuric acid; we have given nothing on the sulphate of ammonia; we have not got the actual cost of production.

# Oral evidence of Messrs. M. S. PANDIT and C. D. SILAS, representing Messrs. Dharamsi Morarjee & Co., and the Eastern Chemical Company Ltd., respectively, recorded at Bombay on the 16th November 1923.

*President.*—Gentlemen, as regards our procedure to-day the Board thought it would be convenient that the representatives of both Companies should attend at the same time. The general questions that arise are of course precisely the same in both cases; both Companies are asking for the same thing and it seemed to us that we would be able to save a little time and expedite matters generally if the representatives of both Companies were present. While the questions are put, the representative of one Company would answer the question in the first instance and then, after we had finished with them, we would ask the representative of the other Company whether he agreed generally with what had been said or whether he wished in any way to supplement or to qualify the answer given. I take it then you have no objection to this procedure?

*Messrs. Pandit and Silas.*—Not at all.

*President.*—The second point is this. In the written statement we have received from both Companies the first question raised is a proposal to abolish import duty on sulphur, but in addition both Companies have asked the Tariff Board to consider the question whether protection should not be accorded to the chemical industry in India by imposing higher import duties on, at any rate, some of the products which they manufacture. In the letters which we sent to the Companies from Calcutta we explained that the question of imposing new or higher import duties on chemical products had not been referred to the Board by the Government of India and that, therefore, we were not in a position to consider proposals of that kind. Both Companies have since then written to us again on the subject and, if I may say so, have adduced some very ingenious arguments calculated to pursuade the Board to modify its attitute. I am afraid, however, that in this matter we cannot deal with it in that way. The legislature have laid down in the Resolution appointing the Board that certain matters would from time to time be referred to them by the Government of India and until the matter has been referred to the Board by the Government of India, the proper course for any person who wishes to put forward proposals for protection is to address the Government of India. I have not one word to say on the arguments that have been used to justify the proposal to protect the chemical industry. All I can say at present is that the Board will be ready to consider them when they receive the mandate from the Government of India on the subject, but at present we are not in a position to consider them. All that has been referred to us is the proposal to remove the import duty on sulphur. We have also expressed our willingness in that connection, if there are any other raw materials used in the same kind of processes for which sulphur is used, to hear evidence as to the removal of duties on such materials, so that our proceedings to-day will be confined to that point.

I see that Messrs. Dharamsi Morarjee have addressed us first, and perhaps we might take that as our guide and we will begin by putting our questions to Mr. Pandit.

Is the sulphur used for these manufactures required purely for the manufacture of sulphuric acid in the first instance?

*Mr. Pandit.*—That is so, purely for the manufacture of sulphuric acid.

*President.*—It has to go through that process in the first instance in each case?

*Mr. Pandit.*—Yes.

*President.*—For what chemical products do you use sulphuric acid?

*Mr. Pandit.*—We are making use of sulphuric acid for the manufacture of hydrochloric acid and nitric acid and certain other allied chemical products which we have on our programme and for which plants have been laid down and are being laid down. The chemicals are the following:—sodium sulphide, glauber salt, copperas, aluminium sulphide, zinc chloride and bone phosphates.

*President.*—Of these that you have mentioned, how many have you manufactured up to date?

*Mr. Pandit.*—We are making the hydrochloric acid, the nitric acid, glauber salt and aluminium sulphide.

*President.*—You have installed, or are installing, machinery and so on for making the others?

*Mr. Pandit.*—That is so.

*President.*—It might be useful if we take them one by one beginning with those which you have already manufactured.

*Mr. Pandit.*—Yes.

*President.*—I had better explain that we wish to ascertain to what extent the removal of duty on sulphur would reduce the cost of manufacture of the various products. Would it be possible for you to tell us the percentage of reduction in the cost which would result from the removal of the duty? Let us take sulphuric acid in the first instance.

*Mr. Pandit.*—In our written statement we have said that the effect of the present import duty on sulphur is that on the invoice value of sulphur we have to pay as much as 18 to 20 per cent.

*President.*—You pay 15 per cent. on a tariff valuation of Rs. 120?

*Mr. Pandit.*—That is right.

*President.*—Whereas you have stated that the approximate c.i.f. price of sulphur at present is about Rs. 90?

*Mr. Pandit.*—That is so; it varies from Rs. 90 to Rs. 100 and the result is that the actual percentage on the c.i.f. price is something over 20 per cent.

*President.*—Yes.

*Mr. Pandit.*—We have said 18 to 20 per cent., but we will take it at 20 per cent. Ordinarily one ton of sulphur makes about 3 tons of chamber acid. Therefore the advantage which each ton of sulphur acid would receive would be approximately 7 per cent.

*President.*—Is it in the form of chamber acid that you actually use the sulphuric acid for your manufactures?

*Mr. Pandit.*—Yes.

*President.*—So that you will get a reduction of Rs. 7 per ton on your sulphuric acid?

*Mr. Pandit.*—Yes.

*President.*—What does it cost you to make a ton of sulphuric acid at present?

*Mr. Pandit.*—We would rather not go into the question of costs because there are always competitive firms and each firm is very anxious to conceal its cost of production from the other.

*President.*—Can you give us the price of sulphuric acid at the present time?

*Mr. Pandit.*—Ordinarily the present price would be Rs. 2 per gallon, that is, roughly, Rs. 244 per ton.

*President.*—On the price basis do you mean 3 per cent.?

*Mr. Pandit.*—That is so.

*President.*—Passing on to the hydrochloric acid, we should like to know how the cost of that would be affected. What is the proportion of sulphuric acid in the hydrochloric acid?

*Mr. Pandit.*—Ordinarily one ton of sulphuric acid yields 1½ ton of hydrochloric acid.

*President.*—So that on that basis one can ascertain the difference which the removal of duty would make to the hydrochloric acid?

*Mr. Pandit.*—It would be about 4½ per cent., I should say. The benefit to the sulphuric acid we put down as 3 per cent. as a result of the removal of duty.

*President.*—It is Rs. 6 in the case of sulphuric acid and about Rs. 4 on the hydrochloric acid. You said that you use a ton : 1½ ton, and therefore it is apparently about Rs. 4.

*Mr. Pandit.*—Yes.

*President.*—In nitric acid?

*Mr. Pandit.*—The proportion is about 1 : 1. One ton of sulphuric acid makes about one ton of nitric acid.

*President.*—On that basis it is Rs. 6 again. Then, glauber salt?

*Mr. Pandit.*—We do not use sulphuric acid directly: it is only a bye-product.

*President.*—Would the removal of duty on sulphur affect glauber salt at all?

*Mr. Pandit.*—It would affect it in this sense that we get the salt cake from hydrochloric acid which we utilize for the manufacture of glauber's salt.

*President.*—And the cheapening of the price of the hydrochloric acid would affect to some extent the cost of the glauber's salt?

*Mr. Pandit.*—Yes.

*President.*—Then let us take aluminium salt.

*Mr. Pandit.*—The proportion is about 1 : 1—the same as nitric acid.

*President.*—Then, as regards the 4 other products that you have not yet manufactured, are you prepared at present to give the proportion in these cases?

*Mr. Pandit.*—We have got the proportion here.

*President.*—Take sodium sulphide then.

*Mr. Pandit.*—This goes into the same category as glauber's salt so that what advantage hydrochloric acid derives would be passed on to the sodium sulphide.

*President.*—Then take copperas.

*Mr. Pandit.*—It would be 1 ton of sulphuric acid to get 1½ ton of copperas.

*President.*—Zinc chloride?

*Mr. Pandit.*—It takes no hydrochloric acid directly for its manufacture.

*President.*—Can you state the proportion between the hydrochloric acid and the zinc chloride?

*Mr. Pandit.*—1 : 1½.

*President.*—The last item is super-phosphates. What is the proportion there?

*Mr. Pandit.*—1 ton of sulphuric acid yields one ton of super-phosphates.

*President.*—Perhaps it would be convenient at this point if we just run through them with you (Mr. Silas) also. In the hydrochloric acid we are told the proportion is 1 : 1½.

*Mr. Silas.*—The proportion is 2 of sulphuric acid to 1 of hydrochloric acid.

*President.*—There is a very considerable difference there.

*Mr. Silas.*— Sulphuric (77%) to Hydrochloric 100%—2:1.
Do. (77%) to Nitric 100%—2:1.
Do. (60%) to Magnesium Sulphate—3:5.
Do. (60%) to Copperas—4:7.

These we already manufacture. We are at the same time investigating the possibility of the manufacture of other products.

*President.*—Taking the Dharamsi Morarjee Chemical Works—the normal outturn of your Works as they stand at present—what is the total quantity of sulphur that you require annually? Or if you like give us your actual consumption of sulphur.

*Mr. Pandit.*—2,000 tons a year.

*President.*—That is on the normal output?

*Mr. Pandit.*—That is on the capacity of our plant.

*President.*—Can you give us your actual imports, say, for the last two years?

*Mr. Pandit.*—1,100 tons. That is the quantity we have imported up till now, since we started our Works.

*President.*—Perhaps you will tell us when your Works were started?

*Mr. Pandit.*—We started to manufacture in August 1922.

*President.*—You have only been working for a little over a year?

*Mr. Pandit.*—Yes.

*President.*—I think you have told us in your written statement—in the case of the Eastern Chemical Company—that you have been working for the last 10 years?

*Mr. Silas.*—Yes.

*President.*—That is to say, you started 1 year before the war?

*Mr. Silas.*—Yes.

*President.*—Can you give us your normal requirements of sulphur and also your actual output for one or two years?

*Mr. Silas.*—What do you mean by normal requirements? Do you mean normal capacity?

*President.*—Yes, on the capacity of your plant as it stands at present.

*Mr. Silas.*—On the capacity of the plant as at present designed, we would require about 2,000 tons per year, but normally we would require only 12 to 15 hundred tons.

*President.*—What do you mean by 'normally'?

*Mr. Silas.*—What we ought to do without competition and what we have done when times were better, but which has come down considerably on account of competition.

*President.*—I understand that of the products that have been mentioned to us to-day, except the super-phosphates, none of them are fertilisers, are they?

*Mr. Silas.*—None.

*President.*—Super-phosphates have not yet been actually manufactured by either of the firms?

*Mr. Silas.*—No. Would you like to know the uses of these various products?

*President.*—Apart from those products that have been mentioned to-day, are there others in the manufacture of which it would be necessary to use sulphuric acid?

*Mr. Silas.*—Not for the moment, but there are other products projected.

*President.*—I do not know if it is worth spending much time on them to-day but if you would send us a list in writing of those you contemplate

manufacturing and if you could in each case give the same sort of information as we have been trying to get to-day, I think that it would be useful.

*Mr. Silas.*—I should be very glad.* I would prefer it in that way because I think we can give it to you much more accurately.

*President.*—If you like to revise any information, you can verify and make sure that it is right. Similarly in the case of your company, Mr. Pandit, if you would like to go through it and make sure that everything is all right, it would be just as well.

*Mr. Pandit.*—Yes.†

*President.*—I take it that the general position of both companies is this: that on any tariff principles which aim at the encouragement and stimulation of industries, raw materials, especially when they are not produced in the country, ought to be imported free?

*Mr. Silas.*—Decidedly.

*President.*—That is the general principle on which you both rely?

*Mr. Pandit.*—Yes.

*President.*—I think that the Board can understand your general attitude about it. Apart from Sulphur, are there any raw materials which you use and which are particularly important to you on your present production on which you have to pay duty?

*Mr. Silas.*—There is creosote which we use in the manufacture of disinfectants.

*President.*—Along with sulphuric acid?

*Mr. Silas.*—Sulphuric acid does not enter into the production of disinfectants but creosote does and it is being imported. There is a duty on that too.

*President.*—So far as those processes are concerned in which you use sulphuric acid, is there anything else that is important to you that you think it worth while bringing to the notice of the Board?

*Mr. Silas.*—No, excepting the other two points where we hoped that you would make some recommendations—*viz.*, the railway freight question and enhancement of the import duty.

*President.*—I am afraid that the railway rate question is outside our purview.

*Mr. Silas.*—Our intention is to show how we are already handicapped so severely in these two respects.

*President.*—Yes. If the larger question so to speak were before us, I think that that would be relevant, but only the minor question of merely the removal of the duty on sulphur has been referred to the Board.

*Mr. Silas.*—Unfortunately the larger question is one you are not dealing with.

*President.*—That again is not a matter for which the Board have any responsibility. Are there any other raw materials in connection with sulphuric acid?

*Mr. Pandit.*—We don't import any raw materials. We could get them in India but the places from which we have to get them are a long way off from Bombay. That affects the question of railway rates which the Board is not prepared to consider.

*President.*—We could not make any recommendations about railway rates. That again is a matter to be brought to the notice of the Government of India.

*Mr. Silas.*—I take it that the Board would be prepared to consider the question about the duty on imported chemicals.

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* *Vide* Statement II of the Eastern Chemical Company, Limited.

† *Vide* Statement III of the Dharamsi Morarjee Chemical Company, Limited.

*President.*—I did not say that the Board would be ready to make recommendations on that point. What I said was that such difficulties were relevant as showing the difficulties the industry had to encounter and as a reason why conceivably protective duties ought to be imposed, but I was not by any means prepared to say that the Board would be prepared to deal with the question of railway rates. That is another matter altogether.

*Mr. Silas.*—Would the Board be prepared merely to draw the Government's attention to this matter?

*President.*—I think that it is much better that on this question you should address the Government of India at this stage.

*Mr. Silas.*—But the support of the Board would be very valuable.

*President.*—You cannot get the support of the Board until the Government of India have referred the question to the Board. I certainly think that your best course is at this stage to make a representation to the Government of India. In all probability it would be sent on to us.

*Mr. Ginwala.*—Are these the only two great chemical works in the Presidency?

*Mr. Silas.*—Yes, as far as we know. There is a very small one at Baroda, I believe.

*Mr. Ginwala.*—Is there much sulphuric acid imported?

*Mr. Silas.*—There used to be, but I do not think there is very much now except perhaps a small quantity of a very high quality for particular purposes.

*Mr. Ginwala.*—Sulphuric acid is liable to a duty of 15 per cent. *ad valorem?*

*Mr. Silas.*—I believe so.

*Mr. Ginwala.*—Now take the proportion of sulphur. The cost of sulphur is about Rs. 90 a ton and with the duty it will come to about Rs. 100?

*Mr. Silas.*—Yes.

*Mr. Ginwala.*—The cost of a ton of sulphuric acid is Rs. 250?

*Mr. Silas.*—I don't agree with that.

*Mr. Ginwala.*—What is your figure?

*Mr. Silas.*—I beg to be excused from disclosing that.

*President.*—Mr. Ginwala only wants the market price.

*Mr. Silas.*—It varies from Rs. 1-12-0 to 2-8-0 per gallon according to concentration.

*Mr. Ginwala.*—Take the highest figure Rs. 2-8-0.

*Mr. Silas.*—It is a very small proportion used for very few purposes.

*Mr. Ginwala.*—Mr. Pandit gave it at Rs. 2.

*Mr. Silas.*—I am not prepared to support Mr. Pandit's figures. We will put it in in a written statement if you do not mind.

*Mr. Ginwala.*—I am only asking for the market price.

*Mr. Silas.*—There is no particular market price. It varies considerably. At the present moment there is a certain amount of competition going on and there is no fixed price. That is all I can tell you. We would be quite willing to give you further particulars later.

*Mr. Ginwala.*—I don't want to know the exact figures. I am only trying to determine the proportion of the price of sulphur to the price of sulphuric acid.

*Mr. Silas.*—That might be done on a fictitious figure.

*Mr. Ginwala.*—Take Mr. Pandit's figures.

*Mr. Silas.*—Assume the cost of sulphur as Rs. 100 and assume also the duty as Rs. 15. The cost of sulphuric acid, *i.e.*, the chamber acid, would work out to Rs. 200. So the duty paid on sulphur in the acid is 7½ per cent.

*Mr. Ginwala.*—That is true. Against the imported sulphuric acid, you have a preference of Rs. 30 on every ton?

*Mr. Mather.*—You make 3 tons of sulphuric acid out of one ton of sulphur?

*Mr. Silas.*—We are now dealing with cost. The cost of chamber acid is double the cost of the sulphur in it.

*Mr. Ginwala.*—Well, two tons of acid would correspond to one ton of sulphur as regards price. On one ton of sulphuric acid, you pay an import duty of 30 rupees, do you not?

*Mr. Silas.*—Yes, 15 per cent. *ad valorem.*

*Mr. Ginwala.*—Out of that, you have got to pay your duty on sulphur which is one-third of a ton, that is to say Rs. 6?

*Mr. Silas.*—You were speaking of the cost of making acid.

*Mr. Ginwala.*—That is, Rs. 9 on the sulphur you use?

*Mr. Silas.*—Yes.

*Mr. Ginwala.*—That would leave you Rs. 21 as against the foreign competitor in regard to sulphuric acid which is imported.

*Mr. Silas.*—Yes.

*Mr. Ginwala.*—What I want to know is, whether in spite of Rs. 21 in your favour as against the foreign manufacturer, you are not able to compete?

*Mr. Silas.*—No.

*Mr. Ginwala.*—That is what I want to know. Why are you not able to compete with the foreign manufacturer?

*Mr. Silas.*—As we pointed out, sulphuric acid by itself is not the most important question but it is the products, for the manufacture of which sulphuric acid is necessary, which are important.

*Mr. Ginwala.*—In spite of Rs. 21 you get roughly by way of protection, you say you are not able to compete with the foreign manufacturer. I want to know the general reasons.

*Mr. Silas.*—Take the case of magnesium sulphate. In the first place we manufacture from magnesite, while Germans manufacture from Kieserite which is a bye-product of the potash industry and a crude form of magnesium sulphate. This saves them about 35 per cent. of the cost.

*Mr. Ginwala.*—So, you have to use more sulphur.

*Mr. Silas.*—We have to use a more expensive product. We have to use magnesite which costs about Rs. 42 a ton. The railway freight on magnesite to Bombay is prohibitive.

*Mr. Ginwala.*—Is there plenty of magnesite in the country?

*Mr. Silas.*—Yes, but the railway freight is about six times the cost of the material ex-mine. Moreover foreign manufacturers have the advantage of a subsidised freight. I have tried to show in our letter to the Board where the difficulties arise. They can bring and sell the stuff so cheaply here that it is impossible to manufacture it in this country.

*Mr. Ginwala.*—Does that apply to any other allied products?

*Mr. Silas.*—It applies equally to copperas. Both Epsom salts and copperas are very important. Epsom salts are very largely used in the textile industry and are used to a certain extent for medicinal purposes.

*Mr. Ginwala.*—You have got to use much more sulphur—that is what it comes to—on the whole than the Germans.

*Mr. Silas.*—Yes: that puts up the cost.

*Mr. Ginwala.*—Are there any other difficulties?

*Mr. Silas.*—It also discourages us from making other products, whereas if we could manufacture sulphuric acid cheaply, we might be encouraged to make other products.

*Mr. Ginwala.*—Do you manufacture sulphuric acid only for use in your other products, or do you sell acid?

*Mr. Silas.*—We sell sulphuric acid as well.

*Mr. Ginwala.*—What are the principal industries in which sulphuric acid is used?

*Mr. Silas.*—It is used in the bleaching and dyeing industry. It is also used in accumulators, electric batteries, etc. Another very important industry is the making of mineral waters.

*Mr. Ginwala.*—Is there much Epsom salt imported into the country? Can you give us your figures?

*Mr. Silas.*—Unfortunately we have not the figures here, 1922-23 import figures are not yet out.

*Mr. Ginwala.*—That does not matter. Give us the 1921-22 figures.

*Mr. Silas.*—In 1920, it was 218 tons and in 1921, 372 tons. These are negligible because we were then supplying the Indian market. The position is now entirely reversed. We have shut down altogether and it is all being imported. The 1922-23 import figures will be very eloquent.

*Mr. Ginwala.*—Does that apply to other products?

*Mr. Silas.*—In a greater or less degree, yes. Another argument is where we are able to produce a little more cheaply, we will probably be able to sell much more cheaply and the bigger production would naturally decrease the unit cost. The only way to decrease the cost is to increase production because overhead charges are exactly the same. The larger production would bring down the cost very considerably and it would benefit everybody concerned.

*Mr. Ginwala.*—Is your company a limited liability company?

*Mr. Silas.*—Yes.

*Mr. Ginwala.*—Is there much Indian capital in it?

*Mr. Silas.*—Considerable.

*Mr. Ginwala.*—Are there any Indians on the Board of Directors?

*Mr. Silas.*—No.

*Mr. Ginwala.*—Mr. Pandit, what about your company?

*Mr. Pandit.*—Our company was registered in Bombay, it is a limited liability company and the Board of Directors are Indians.

*Mr. Ginwala.*—What about your labour?

*Mr. Pandit.*—We are favourably situated as regards labour.

*Mr. Ginwala.*—Is it all Indian labour?

*Mr. Pandit.*—Yes, except the Works Manager who is not an Indian.

*Mr. Silas.*—We are in exactly the same position, except that our Board is in London. The company was incorporated in London. Our shareholders are both Indian and English.

*Mr. Ginwala.*—Do you use Indian labour?

*Mr. Silas.*—Yes, except for the principal officers—I mean on the technical side.

*Mr. Ginwala.*—Is there any difficulty experienced in the matter of labour?

*Mr. Silas.*—None at all.

*Mr. Pandit.*—Under our Works Manager we have several young chemists—junior assistant chemists—who are being trained in the manufacture of chemicals. Some of them have done awfully well and I think in course of time we anticipate that the works would be manned entirely by Indians.

*Mr. Ginwala.*—Have they got University qualifications?

*Mr. Pandit.*—They are all B.Sc's.

*Mr. Ginwala.*—How many of them have you got?

*Mr. Pandit.*—Eight altogether.

*Mr. Silas.*—The same remark applies to us, except that we have six.

*Mr. Kale.*—Will you be able to give us a list of the various products in the case of which your output is generally used?

*Mr. Silas.*—You mean the products which might be manufactured?

*Mr. Kale.*—I want to know the uses to which your products would be put in other industries.

*Mr. Silas.*—Quite easily.*

*Mr. Kale.*—So that we may have an idea as to the effect that the recommendation we may make, will have upon the industries generally in the country. You just now told us that you would be able to reduce the cost per unit.

*Mr. Silas.*—If we could increase our production!

*Mr. Kale.*—Of course. That would mean that the cost of production in other industries would also be reduced.

*Mr. Silas.*—Certainly.

*Mr. Kale.*—It would be a great advantage to the country and that is the reason why I am anxious to have a list.

*Mr. Silas.*—That is a very strong point that I wanted to make.

*Mr. Kale.*—You have laid particular stress upon the advantage to agriculture of your super-phosphates.

*Mr. Silas.*—Yes.

*Mr. Kale.*—Can you tell me what is the price per ton of the fertilisers?

*Mr. Pandit.*—The price of bone-phosphates is about Rs. 110 per ton. It varies between Rs. 110 and 120.

*Mr. Kale.*—It has been mentioned in your written statement that the Bombay Presidency alone would be able to absorb one and a quarter million tons of fertilisers a year.

*Mr. Silas.*—Under the most favourable conditions.

*Mr. Kale.*—How much is it in terms of rupees?

*Mr. Silas.*—That is taking the ideal of course.

*Mr. Kale.*—Quite true.

*Mr. Silas.*—Probably you will never reach that.

*Mr. Kale.*—To find out how much under ideal conditions the cultivators in the Bombay Presidency would be spending on fertilisers, we have only to multiply?

*Mr. Silas.*—Pardon me. In the case of a very large output, the cost would go down very considerably. So that is no criterion. You might probably bring down the cost to half or less than half.

*Mr. Kale.*—You hope to bring down the cost so low as that?

*Mr. Silas.*—Perhaps more. It entirely depends on the quantity.

*Mr. Kale.*—You are aware of the economic condition of the average Indian cultivator?

*Mr. Silas.*—Yes.

*Mr. Kale.*—If you want to encourage him to use the fertiliser, the cost must be such as will be within the means of the average cultivator.

*Mr. Silas.*—It will be. The benefit will be such that it would pay him much more than the cost of the fertiliser. That, I think, is an established fact. There are many authorities on the subject.

*Mr. Kale.*—In the case of what are called commercial crops such as sugarcane and cotton, it may be possible to use these fertilisers on a large scale, but I want to know whether you are also referring to wheat and rice? I am rather doubtful, for instance, whether the cultivator in the Konkan to which reference has been made, will be able to use your fertiliser?

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* *Vide* Statement II of the Eastern Chemical Company, and Statement III, para. 2, of the Dharamsi Morarjee Chemical Company.

*Mr. Silas.*—He will.

*Mr. Kale.*—Have you ascertained the cost per acre there?

*Mr. Silas.* No. I have not gone into figures, but it will be very very considerably less than the figure now before you.

*Mr. Kale.*—So if the cultivator does not use fertilisers to-day, is it because the cost of fertilisers is so very high, or because he is ignorant?

*Mr. Silas.*—Partly that and partly because of his ignorance: also in a large measure because he is generally in debt. Under the present system, as you know, the average raiyat is under a very great disadvantage but a system of Co-operative Credit Societies and Co-operative Credit Banks will easily remedy the whole thing.

*Mr. Kale.*—Co-operative Credit Societies and the Agricultural Departments are trying to encourage the use of these fertilisers?

*Mr. Silas.*—Yes.

*Mr. Kale.*—If you are able to bring down the cost of fertilisers, you think that it will result in the improvement of agriculture? That is your point?

*Mr. Silas.*—Yes.

*Mr. Mather.*—Is sulphate of ammonia made in Bombay?

*Mr. Silas.*—Not made here. The ammonia is chiefly obtained from blast furnaces or gas works. Ammonium sulphate could be made here but not at prices that could compete with Bengal or Calcutta.

*Mr. Mather.*—Is it not made at the Gas Works in Bombay?

*Mr. Silas.*—I don't think so. The Tata Iron and Steel Company produce a large quantity at their steel works and practically all the sulphate that I know of comes to this place from Tatas'.

*Mr. Mather.*—On page 2 of your statement, you speak of the use of sulphuric acid. Apparently you contemplate the possibility of using sulphuric acid on a very large scale for bone phosphates. Would you have any difficulty in getting a sufficient supply of bones?

*Mr. Silas.*—We are not limited to bones. There are other deposits which could be used.

*Mr. Mather.*—Are these natural phospates?

*Mr. Silas.*—Yes, for instance in the Red Sea there are large mines.

*Mr. Mather.*—Are there natural deposits on this side of India?

*Mr. Silas.*—No. But the supply of bones is very considerable, most of which is exported. There is quite a sufficient number of bone mills existing at present to manufacture phosphates on a very large scale.

*Mr. Mather.*—Is it enough for a big expansion of the industry?

*Mr. Silas.*—Quite.

*Mr. Pandit.*—May I also make a statement in connection with the question of ammonium sulphate. I have already stated that we are putting in a plant for the manufacture of bone phosphates. Our plant would be ready in three months time, but during the time that we have been in existence we have had considerable experience not of manufacturing Ammonium Sulphate directly but of getting it manufactured by the Tata Iron and Steel Company on our account by supplying our sulphuric acid to them in return. We have four depôts in the Deccan and we have done a great deal in the way of popularising fertilisers.

*Mr. Mather.*—You have been sending your sulphuric acid to Tatas?

*Mr. Pandit.*—We did, but we have stopped doing it now.

*Mr. Kale.*—Have you had any difficulty in disposing of your products?

*Mr. Pandit.*—We found no difficulty whatever.

*Mr. Kale.*—Is there a considerable demand?

*Mr. Pandit.*—There is. If you take the statistics which I am afraid I have not got now, it will be seen that the sale of sulphate of ammonia has during the last few years considerably increased.

*Mr. Kale.*—Do you think that the demand is encouraging?

*Mr. Pandit.*—Yes.

*President.*—It would be useful, if you can give us the figures of your actual sales.

*Mr. Pandit.*—We would do so.*

*Mr. Kale.*—That would give us a definite idea as to what had already been done.

*Mr. Pandit.*—Certainly.

*President.*—Are there any other points that either of you, Gentlemen, would wish to say before we conclude our examination?

*Mr. Silas.*—The enquiry is so limited that there is nothing much more to say.

*Mr. Pandit.*—Generally I would impress upon the Board the great necessity of cheapening the price of sulphur because the price of sulphur will react on the price of other chemicals. Of course we shall be able to face competition then much better than what we are able to do just now.

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* *Vide* Statement III of the Dharamsi Morarjee Chemical Company.

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on 01 February, 2020